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ARCHIVES
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LARYNGOLOGY

EDITED BY

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ARCHIVES OF LARYNGOLOGY.

ON THE TREATMENT OF CHRONIC GRANULAR PHARYNGITIS BY THE GALVANO-CAUSTIC METHOD.

By GEORGE MACKERN, M.D. LOND., M.R.C.S. ENG.

BUENOS-AYRES.

SOME apology may seem necessary for placing on record cases of such a common disease of the pharynx as chronic granular pharyngitis, but I venture to do so for the following reasons: 1st. They are cases of an advanced and severe type, with certain peculiarities which I did not observe as occurring during the two years I studied the throat at my friend Dr. Felix Semon's *clinique*, at Newington Butts, London. 2d. The comparatively recent introduction of the galvano-caustic method of treatment. 3d. The fact of their being cases occurring in a country, the climatic and hygienic particularities of which might possibly exercise some influence over the *forms* in which the affection manifests itself. 4. The well-known chronicity and obstinacy of a disease which has hitherto resisted all ordinary modes of treatment.

The cases will first be given in detail, and then a few remarks will follow on the varieties observed and on the etiology.

CASE I—*Chronic granular pharyngitis; old follicular tonsillitis.*

Señora P., aged twenty-seven, a Spanish lady of thin habit. With the exception of her throat troubles she has always enjoyed fair health, and is the mother of three children. Two of these children suffer from enlarged tonsils, chronic follicular tonsillitis, of

whom one also has suffered from several attacks of "croup" when an infant; the children are otherwise healthy. There is nothing in the family history to suggest any latent specific taint.

The patient has become depressed and languid, with loss of appetite, her disease having been described to her as "consumption of the throat."

History of the disease. During the last eight or nine years has had repeated attacks of tonsillitis, especially on the left side, and is much subject to colds in the head. The pharyngeal symptoms are as follows: dryness in the pharynx, with accumulation of viscid, sticky mucus there, necessitating much hawking and coughing for its removal, and the sputum being expelled in pellets which occasionally have been tinged with blood. For some months she has had a burning sensation in the vault of the pharynx, but no nasal obstruction and no nasal voice. Formerly was a good singer, but for the last year or two has been obliged to give up singing to a great extent, as the voice becomes soon and easily tired.

Former treatment. All sorts of sprays and gargles, etc., have been tried in vain, and for the three last years she has given up all treatment in disgust.

Present condition. *Velum palati*: Congested at its margin; otherwise normal. *Tonsils*: Left, reduced to a small grayish-white mass, quite hard to the touch, and looking like a mass of fibrous tissue. Right, small but normal.

Posterior pharyngeal wall. General surface, pale; three large thin-walled veins traverse it, and at irregular intervals and chiefly in their area of distribution and on their branches are situated the granules which are grayish elevations averaging from 1 to 2 mm. in diameter. Very low down on the left side below the level of the tonsil is seen a bunch of three granules as large as small peas, round, and hard to the touch, which have caused the patient much inconvenience by their presence.

Larynx, somewhat anæmic, but normal in all other respects.

Treatment. On March 20th, and subsequently on the 23d, 27th, and 1st of April, the granules were successfully destroyed by means of the fine platinum point of Schech's beautiful and delicate galvano-caustic throat apparatus,¹ heated to a dull red. The bunch of large granules on the left side was also destroyed by thrusting the red-hot wire into the centre of each granule, and

¹ Obtained from Albrecht, instrument maker, Tübingen.

the fibrous remains of the left tonsil was also well drilled into by a broader platinum point. A good deal of pain and some dysphagia followed each sitting, but after twenty-four hours, deglutition always became normal. A few lozenges, containing each three grains of ext. rhatany (Pharm. Throat Hosp., Lond.) were ordered to be taken at intervals during the day, and the general condition of debility was met by tinct. ferri pomatæ (Prussian Pharm.), and tinct. calumbæ, āā ℥ xv, ter in die, and a suitable diet recommended.

April 22d. Aspect of pharynx much improved, no granules or distended veins being any longer visible; the bunch of large granules has completely disappeared; a small healthy-looking portion above the left tonsil is left, and the patient has lost the burning sensation in the palate, and the hawking and expectoration have nearly disappeared.

May 3d. The lady expresses herself as feeling much better and stronger; appetite much improved; and she is no longer troubled by collections of viscid mucus in the pharynx. By my direction she now practises the middle notes in her voice, which are the least tiring in execution.

CASE 2.—*Extreme chronic granular pharyngitis.*

Señor, E. P., æt. 32; a Spanish gentleman of thin, spare habit, sallow complexion, and nervous temperament.

With the exception of some venereal troubles years ago, which, however, were not followed by any constitutional effects, has always enjoyed good health.

History of present disease.—For nearly two years has suffered much inconvenience in his pharynx; a continual tickling sensation in his throat, and due to accumulation of mucus there, necessitating continual efforts at expulsion. This lately became so aggravated that he is obliged to spit and clear his throat every few minutes; consequently he is not able to go into society, and he says his life has become miserable to him. The accumulation of mucus is worst the first thing in the morning, or in the afternoon and evening. He has not noticed sputa tinged with blood.

Present appearance, March 24th.—*Left tonsil*: pale, harder than normal; its surface rough, with projecting pimples, apparently due to follicular tonsillitis (chronic). Right tonsil is normal. *Posterior pharyngeal wall*. The quadrilateral space, bounded above by a plane passing backward at the level of the soft palate,

below by a plane at the level of the floor of the mouth, and bounded at the sides by the pillars of the fauces, is occupied by an immense number of small gray granules, the mucous membrane looking as if sprinkled all over with small sago grains. Numerous thin-walled veins are seen ramifying in all directions, and the granules are situated, for the most part, on their ramifications, but in no way presenting an appearance of being varicose dilatations of those veins. (A case, No. 3, will be given, in which one or two "varicose dilatations" were present.)

The velum palati and the posterior nares are not affected, nor does the larynx present any departure from the healthy state.

Treatment.—On March 27th, the fine platinum point was used in six or seven spots, and as many granules destroyed, together with a few of the veins.

A good deal of pain and some inflammatory redness followed, but in a day or two these had passed away, and the patient said he felt much better.

April 3d. Some more granules were burnt off, and the inconveniences following the burnings were much less. The patient is a very nervous man, and he did not present himself again for treatment till May the 4th, when, on examination, some half dozen or so of granules were visible, and they were situated on the branches of a large thin-walled vessel, about 1 mm. in width, and which had developed since the last visit. On burning off the granules, this vein became visibly swollen and much darker in color. On then inserting the red-hot point into the main trunk of the vein it immediately collapsed, and became lost to sight; this effect was very striking.

On May the 30th the patient presented himself for the last time. The mucous membrane of the posterior pharyngeal wall then bore traces of the previous burnings, in the shape of small whitish fibrous-looking cicatrices, but the general aspect was very satisfactory, the membrane being of a normal pink color, and no granules being now visible. He stated that the expectoration was now "infinitely little," but that he had not yet altogether lost the nervous sensation of tickling in the throat. This, I assured him, he would lose in process of time, and I prescribed a strong solution of bromide of potassium to be used as a pigment to the pharynx occasionally.

Note.—This was, in some respects, the most satisfactory case of all. The number of granules actually destroyed by the

galvano-caustic formed but a small proportion of the number which existed at the beginning, but after each application a certain number of untouched granules would disappear. This must be due, I think, to the destruction of the blood-vessels in connection with them, the process in this case being analogous to the rapid disappearance of torpid granulations in chronic ulcers when their edges are incised, where not only is the tension of the surrounding skin relieved, but a sort of local bleeding and consequent diminution in the engorgement is also to be considered.

CASE 3.—Extensive glandular disease of the uvula ; slight granular pharyngitis.

The disease in this case existed chiefly in the velum palati, which presented a most remarkable appearance.

Señor M., æt. 30 ; a Spanish gentleman employed in the customs service, and is consequently much exposed to damp at the water's edge. He is a thin, wiry man, of a dark complexion ; no history of syphilis, and no traces of strumous diathesis ; is the father of two healthy children. With the exception of his throat troubles, which began eighteen months ago, has always enjoyed good health.

History of present disease.—His symptoms began with continual cough, due to a tickling sensation in his throat ; attacks of pain at various intervals at first, and occasional difficulty in swallowing, especially in the case of hot liquids, which cause him considerable pain. He has a good deal of mucous viscid expectoration. Owing doubtless to the peculiar appearance of the uvula the man has become quite nervous about himself, and looks at his throat several times a day in a small mirror, which he carries in his pocket on purpose.

Present condition.—The uvula is very much swollen, and of more than double its normal length, so that it hangs down into the pharynx ; its tip and edges are gelatinous-looking. At its attachment to the soft palate is seen a mass of tumefactions, four in number, and looking like small boils, two of them pointing and presenting points of commencing suppuration. Lower down there are also several projections of the mucous membrane, no doubt concealed granules, but smaller than the boils just mentioned. The general surface of the uvula is congested and bluish in color,

and the soft palate on each side is also much congested, two small granules being seen on the right half in front. The posterior pharyngeal wall appears to be tolerably healthy, a few small granules alone being visible. The larynx is quite normal.

Treatment.—On April the 20th the prominent boils were thoroughly destroyed by the red-hot platinum point.

April 23d. A surprising result already, the uvula being much reduced in size and much less blue in color.

April 25th. Two more of the inflamed glands destroyed and the few pharyngeal granules burnt in a similar manner.

May 1st. Small sloughs now occupy the sites of the former boils, and the whole uvula presents a much more normal aspect. Rhatany lozenges prescribed.

May 15th. The uvula is now of natural size and shape, and contracts freely on irritation. The mucous membrane of the velum is everywhere normal, a small scar alone indicating the former site of the largest of the boils.

Remarks.—The cause of the elongated and flabby state of the uvula I put down to the presence of the inflamed glands at its base causing inflammatory paralysis of the azygos uvulæ muscles; when these glands were destroyed, the uvula regained its normal shape and irritability.

I may add that the unfortunate man had spent a small fortune at the chemist's in every imaginable kind of spray and gargle, and that lately his medical advisers had recommended amputation of the uvula. Seeing that the disease existed at its base and encroached upon the line of attachment to the soft palate, I think amputation would have been followed by tedious suppuration and possibly much scarring.

CASE 4.—Chronic granular pharyngitis; so-called "varicosities."

Senor C., Spanish gentleman, æt. forty-one, of no occupation.

Up to the age of nineteen was very delicate, had continual cough, and the left lung was said to be phthisical. His health, however, afterward improved, and for the last ten years his general health has been good.

History of present disease.—More or less, from the age of twenty,

he has suffered from his throat—constant hawking, with a peculiar feeling of constriction in the pharynx, as if he were going to be suffocated. This sensation has troubled him frequently at night, causing him to wake up at night in a fright. Frequent expectoration of thick viscid mucus, sometimes tinged with blood. Blood also occasionally passes through his nose.

No sign of disease in pulmonary organs.

Description of the disease.—The tonsils are normal, but the whole velum palati is injected, especially its edges and the uvula.

Posterior pharyngeal wall shows extensive granular disease, not as much in the number of granules visible, as in their large size and peculiar appearance.

On the left side is a large, thin-walled vein, with a grayish, semi-translucent, hard mass about 2 mm. in diameter, lying right on the bifurcation of its two terminal branches. Low down on the right side, and also in the direction of a prominent vessel, is a large œdematous-looking granule, which is soft to the touch and apparently hollow or filled with some fluid substance. There are a few other large granules also scattered about. The whole pharyngeal wall is congested, but there is nothing in its appearance to suggest an acute condition.

Treatment.—On May 26th the granules and veins were destroyed. The insertion of the red-hot platinum point into the large, œdematous-looking granule of the right side caused an audible noise. A few drops of blood followed, the granule collapsed, and the vein in connection with it became more turgid. Trochisci krameriæ were prescribed.

June 3d. A second galvano-caustic application was made to the hollow granule, which had reappeared to a certain extent. Prescribed potass. iod., gr. v.; tinct. ferri pomatæ, ℥ xv.; ter in die.

June 23d. The patient expressed himself as feeling much better. Expectoration was now very little, and he had completely lost the sensation of constriction in the throat.

The next case also is an example of this varicose condition, but in a lesser degree.

CASE 5.—*Chronic granular pharyngitis; varicosities; slight chronic laryngitis.*

Señora G., a Spanish lady, æt. 26, of stout habit, married, with two children. The elder, a boy of six, has been hoarse for

more than a year, and makes a snoring noise during sleep ; on examination he is seen to have chronic enlargement of the tonsils, a much thickened and congested epiglottis, and some tumefaction of the ventricular bands in the larynx. The younger child, a girl, is quite healthy.

History of the disease.—Ever since childhood the patient has had a somewhat thick and indistinct voice, but she has never lost her voice entirely. The pharyngeal disease declared itself some two years ago with the usual symptoms of constant cough and copious expectoration, the sputa being, however, more frequently tinged with blood than is ordinarily the case. She says also that she has much irritation in the pharynx very low down, which sometimes causes vomiting.

Description of the disease.—This case is remarkable, like the one just described, more for the size and peculiarities of the granules than for their number, which is about a dozen. These are scattered over the posterior pharyngeal wall, the largest being somewhat low down below the level of the floor of the mouth. The adventitious veins are very prominent in this case and extend lower down than usual. The granules present the semi-gelatinous appearance as described in the last case, but they do not exceed 1 mm. in diameter in size.

Treatment.—On May 31st, some of the granules were destroyed in the usual way, two of them bursting, as it were, with a detonating report, and from each escaped a drop of blood. These disappeared at once, and, unlike in the former case, have not reappeared again.

June 10th. The few remaining granules cauterized ; some difficulty was experienced in touching those low down, as retching is easily induced in this patient, and unless the granule itself and alone is burnt more harm than good is done. Trochisci krameriæ, prescribed.

July 1st. Patient expresses herself as feeling very much better ; the expectoration is now very little, is not tinged with blood, and the cough has disappeared. But she still complains of a sensation of constriction and slight burning low down, about on a level with the top of the thyroid cartilage. I have no doubt that some granular disease exists low down there in the pharynx, but owing to the difficulty of seeing the parts there and operating with accuracy, as good a result as usual cannot be expected. I also remarked that the cicatrices left by the burning, are larger

and whiter than usual; in fact, the whole mucous membrane in this case seems to be in an unhealthy state, and I may perhaps have burnt too deeply with the platinum point. No bad result I hope will follow, but this is a point to be remembered and guarded against.

Larynx.—The vocal cords are slightly congested, and the arytenoid folds appear thickened and pale in color; a good deal of mucus also seems to accumulate between the vocal cords; consequently regular applications of zinc chloride solution (15 grs. to the oz.) were made with good result.

July 15th. The whole mucous membrane of the pharynx is much improved in appearance, and I am quite satisfied with the result. The vocal cords are now of the normal brilliant white color, and the voice is improved in character.

General Remarks.—Several other cases have come under my observation, showing marked venous vascularity of the pharynx with tracts of softened granular material; in many cases, too, the mucous membrane around these tracts is swollen and œdematous-looking. All these are old-standing cases, and their chronicity forms an important factor in the etiology. The presence of these softened masses can be explained as follows: Each granule in ordinary granular pharyngitis is connected with a minute branch of a vein whose main trunk is connected with certain areas, and the presence of the venous supply I believe to be *secondary* to the glandular hypertrophy, and due to it. The disease being neglected, the glands continue to hypertrophy, neighboring ones coalesce and form the larger masses and tracts so common in advanced cases. *Pari passu* with this also increases the venous supply, hence the existence of the large thin-walled veins. Degeneration of the gland cells takes place, and the masses soften down in the centre, hence the presence of the so-called “varicosities,” examples of which are given in cases 4 and 5. Hence when I come across one of these large softened masses, I have no hesitation in burning them thoroughly, and as yet this method has proved efficacious without any evil result. As a rule, these larger masses require a second and even a third touch of the cautery, but they eventually disappear, and with them the abnormal venous supply.

As regards the *etiology* of granular pharyngitis, I do not know that much light can be thrown on this difficult point, but three causes appear to me to warrant more attention in connection with the disease in the country. These are : (1) heredity ; (2) exposure to damp ; and (3) tobacco smoking.

1. *Heredity*.—It is very common to find several members of the same family attacked by granular pharyngitis, and, in my experience, the tendency seems to be derived more from the mother than the father. Should this tendency be considered more in the light of a diathesis? If so, the so-called “strumous diathesis” (that rock of offence to pathologists, but well enough understood term by practical men) is the most common. In this diathesis the skin and mucous membranes suffer the most, the pharynx usually becoming affected at the time of puberty. Chronic enlargement of the tonsils often occurs much earlier, during childhood, but acute angina and granular pharyngitis do not usually develop till the age of puberty.

In connection with the subject of diathesis, the question of a herpetic diathesis first raised by Guéneau de Mussy, and since further developed by Bouchut and Deprés in their “Dictionary of Medicine,” is of very great interest. According to them, this is a diathesis which, during youth, develops on the skin vesicular, pustular, squamous, etc., eruptions, but, later on, the internal mucous membranes become affected by chronic catarrhs, including the throat, stomach, intestines, vagina, etc., so that certain forms of emphysema, asthma, and even phthisis are put down to this. The history of skin eruptions in childhood is difficult to obtain, but certainly there seems to be a tendency here to a general implication of the mucous membranes of the body. The pharynx, larynx, and nasal cavities are quite commonly affected together ; there is often chronic dyspepsia, and vaginal leucorrhœa is most frequent. Among men, too, the urethra appears to be very easily affected, and gonorrhœas are both violent and pernicious. Cancer, too, is extremely frequent in this country, especially of the liver, stomach, and intestinal tract, and I have already come across

two well-marked cases of cancer of the larynx. This irritable condition of the mucous membranes is doubtless also hereditary, and is a pathological condition of great interest in this country.

2. *Exposure to damp.*—Situated as this city is, at the mouth of an immense river, the River Plate, on a perfectly flat plain, with soft, rich, loamy soil, it can be no matter for wonder that the place is very damp. Blessed as we are with a magnificent sunshine, and a nearly always cloudless sky, much of this dampness is counterbalanced; still from a hygienic point of view, the presence of a large quantity of moisture habitually in the air must be considered as an exciting cause of disease. Chiefly must this be considered in connection with chronic affections of the mucous membranes, and with a form of neuralgia which yields instantly to quinine. It would appear, then, that habitually breathing a damp atmosphere, especially in warm weather, tends much to relaxation of the pharyngeal mucous membrane, an increased vascular supply, and a consequent glandular hyperplasia—which is what we see in the common granular pharyngitis described in the above cases.

3. *Tobacco smoking.*—Given a relaxed mucous membrane, and an hereditary predisposition, tobacco is the irritating factor. Morell Mackenzie ("Dis. Throat and Nose," Lond. 1880) considers that the abuse of tobacco smoking leads merely to relaxation of the mucous membrane, but the quantity smoked here, and the quality also, are two factors which I presume he has had no experience of. First and foremost come the black cigarettes, made of the strongest Brazilian tobacco, so strong that most European smokers are fairly upset by them at first. These are smoked here to an excessive degree, and cannot but be injurious, causing in the first instance, as Mackenzie observes with regard to tobacco generally, relaxation of the pharyngeal mucous membrane, but I also believe followed by congestion and granular disease. Then come the Picadura cigarettes, smoked here in immense numbers, composed of dry Habana tobacco, finely cut and strongly impregnated with nitre. Strong cigars, too, are smoked, but not to such a degree as cigar-

ettes, and I do not believe these are so injurious. In conclusion, I do not say that tobacco smoking is the most active exciting cause of granular disease, but I do think that it is an active factor in its production, and it is a striking fact that most of the old-standing bad cases will be found to have given up smoking of their own accord.

With regard to a constant exposure to bad smells due to drainage as a cause of granular disease, I think it is a fruitful cause of tonsillitis and ulcerative recurring pharyngitis, but there is no evidence to prove that *granular* pharyngitis results from breathing foul air.

Concerning the use of the galvano-caustic method, I can say I have been uniformly pleased with the results in a great number of cases. Although apparently a severe measure, no evil results have ever followed its use; it is convenient, painless, and cleanly; in fact, it seems to be antiseptic, as the sloughing is uniformly followed by rapid and healthy healing.

HISTORY OF A BONE IMPACTED IN THE SUB- GLOTTIC PORTION OF THE LARYNX.

By RAMON DE LA SOTA, M.D.,

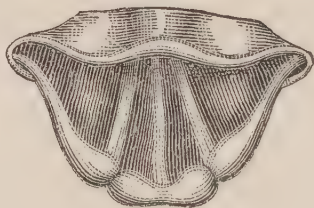
SEVILLE, SPAIN.

On Aug. 25, 1882, there appeared at the Polyclinic, Dermatological and Laryngeal Department of the Medical School of Seville (Spain), a boy, twelve years old, named Antonio Jimenez, of nervous-lymphatic constitution, well developed, an apprentice at one of the iron foundries in this place. He was accompanied by his mother, who said that on August 1st, while eating his evening meal, the boy had swallowed a bone, and that immediately after he had an attack of cough and suffocation, produced by something that he felt scratching his throat as it passed. This trouble was soon over, and the boy went on eating with perfect ease.

He slept well that night, and the next morning went to the foundry, and kept at work all the day without feeling any thing wrong ; for this reason neither his parents nor he thought more about what had happened the previous day. But at five o'clock in the morning of Aug. 3d, the lad woke up with a severe cough, which made him spit a little blood ; afterward he was very hoarse and troubled by the cough till the next Sunday, when, on trying to run, he experienced suffocation, a cold perspiration extended itself all over his body, his sight grew dizzy, and he lost the power of hearing. This condition lasted for a quarter of an hour, and occurred again more violently on Monday. Then the boy's parents asked the assistance of the learned professor, Don Pedro Ruiz Prieto, who, after prescribing an emetic, sinapisms on the lower limbs, an ointment of belladonna to be applied to the neck, and recommending quietude, had the kindness to send me the boy to the Polyclinic, where he had come on the 8th ; but as I did not go there on that

day, no laryngoscopical examination was made, and nothing was prescribed. The patient, suffering great fatigue from slight exertions, principally in walking, and having frequent attacks of asphyxia, then spent two weeks going from one physician to another, till at last Dr. Salado recommended his parents to call at the Polyclinic again.

When I saw him he looked anxious and dejected. He was pale; he breathed with difficulty; he coughed frequently; his voice was hoarse and almost extinct, but still he could eat, drink, and sleep well, although his mother said he had lost a good deal of weight in a few days. The laryngoscope showed a larynx entirely sound in the supra-glottic portion, and the epiglottis a little inclined backward. The vocal cords moved freely, and had a pearl-white color. There could be perfectly well seen a white bone stuck in the infra-glottic portion, and placed in such a manner as to divide the laryngeal space into two equal parts, right and left. It was not possible for me to appreciate either its size or its shape, because I could only see one of its borders. The following sketch is an exact copy of the laryngoscopical image.



Not having at hand a lateral laryngeal forceps, I asked the patient's mother to take him to my private office next day; then I tried to pull out the foreign body by means of Fauvel's forceps. Although I succeeded in securing it firmly at the first trial, I could not draw it out from the place in which it was impacted. I did not dare to give too strong a pull, for fear of laryngeal spasm, which would have forced me to perform tracheotomy in my own house.

The lad could not sleep that night; the attacks of asphyxia were more frequent and severer, until at four o'clock in the morning he had one so very painful that his parents, thinking that he was going to die, sent for me in haste. I found the sufferer in quite an alarming condition: his breathing was short, quick, and noisy;

his pulse weak and quick ; his skin covered all over with cold perspiration ; his sight whirling, his face distorted, his lips livid.

I immediately proceeded to perform tracheotomy. I used the bistoury to cut the skin and trachea, and the thermo-cautery to sever the other tissues, succeeding, by this means, in finishing the operation without having spilled a single drop of blood.

Warmth and breath were immediately re-established, and in half an hour the boy was enjoying a refreshing and sound sleep.

On the next day, without the least success, I tried to catch hold of the bone. I introduced a pair of forceps by the tracheal wound, but after several endeavors I had to give it up.

During the two following days I repeated these attempts with no better success. Then I resolved to wait until the opening in the neck had adapted itself to the canula, and then to try, *through the natural ways*, to dislodge and extract the bone.

With this object in view, I deferred further operations until the 11th of September, when the laryngoscope showed that the foreign body was in the very same position as before the tracheotomy was made, with the only difference that its anterior third part was covered with an exuberant granulation, growing from the spot where the bone was impacted in the angle of the thyroid cartilage.

The laryngoscopical examination was made with difficulty, because the epiglottis was hanging lower upon the superior opening of the larynx than at the time of the first inspection, and because the patient could not bear the contact of the mirror as well as before, on account of great irritability of the parts, which I could not attribute to any material change, as every thing looked sound and well. For this reason, however, I could not enter into the laryngeal cavity either with Fauvel's forceps or with Oertel's tube-forceps.

Without the least success I tried for twelve days to catch hold of the foreign body, till finally I extracted a little splinter that had become separated from the rest of the bone. Very often I pulled out, in various proportions, parts of the exuberant granulation.

After this time the lad caught a bronchial cold, which kept him in bed for two weeks ; and until the third week was over, he did not come back to my office to continue the attempt for extracting the bone. Every third day I tried, but without any material success, although on the 25th of October I caught hold of the bone twice, it was with such a bad grasp that it escaped from

the teeth of the forceps. On examining with the laryngoscope, I observed that the bone had been dislodged from its previous situation, that it was now placed in an oblique position to the axis of the glottis, and that its posterior part had disappeared under the patient's left vocal cord.

The new position of the foreign body inclined me, during the two days that I did not see my patient, toward performing the operation of thyrotomy. But on the 27th of October he came to me saying that on the previous night he had suffered several severe attacks of cough ; that after one of them he had felt something sticking in the bottom of his throat ; and that he still felt some pain, principally during deglutition. I very carefully examined the pharynx without finding any thing there ; and on examining the larynx I noticed that the bone had disappeared from the place where it had been for three months. But where was it ? Had we reasons to believe that all danger was over, or on the contrary was there now, more than ever, any thing to be afraid of ? The patient breathed through the canula without the least difficulty ; the air passed freely through the bronchi ; and so far as I could reach with the laryngoscope, nothing was to be seen. I made the lad eat some cakes and drink a glass of water in my presence ; the deglutition of both was quite easy, and the certainty that he could eat and drink without feeling any pain, encouraged the boy. After my ineffectual search for the bone, and taking into consideration the cough produced, no doubt, by its displacement, I concluded that it had been swallowed, scratching on its passage downward some part of the mucous membrane in the pharynx or œsophagus, to which ought to be ascribed the pain that the lad had felt in his throat. I did not take the canula out, because his mother had cleansed it a moment before leaving home for my office.

When I saw the patient next day he told me that nothing remarkable had occurred. I repeated my investigations, and not finding the bone, I became more positive as to the correctness of my previous judgment. His mother had again cleansed the canula, for which reason I did not remove it ; but I corked it in order that the lad might get used to breathe through his larynx.

On the 30th of October the poor fellow came to see me quite crestfallen, because he had been unable to keep the canula closed for more than one day, as he had experienced several attacks of suffocation similar to those that he was subject to before the

tracheotomy was made, and when he took out the stopper there came out from the canula a large quantity of mucus and purulent matter. From fear of asphyxia his mother did not dare this time to clean the canula.

Having my mind prepossessed with the information received, I proceeded to take the canula out, and great was my astonishment and fright at the discovery of the bone lying flat at the bottom of the opening, covering the posterior wall of the trachea, where the lower extremity of the canula had stopped it. I have said *fright*, because I trembled at the thought that the bone might slide along the trachea and fall in one of the bronchi while I was getting the forceps to pull it out or during the effort to extract it. Fortunately, nothing of the kind happened, and I had the satisfaction of catching it firmly and of taking it out without the least accident.

The bone formed a quadrilateral plate of half a millimetre in thickness, eighteen millimetres between its farthest corners, which were very sharp, and fifteen millimetres between its nearest corners. Its edges were uneven and furnished with sharp points. Two days later I withdrew the canula. The closing of the wound took place extraordinarily quickly and, a week afterward, cicatrization being complete, the boy enjoyed again good health, and had completely recovered in every respect.

Remarks.—The present history shows the great risk run when a foreign body is for a long time retained in the larynx without tracheotomy being performed, as there happened so very severe attacks of suffocation that the patient's life was endangered.

Before opening the trachea I wished to try the extraction *per vias naturales*, notwithstanding that I kept in mind the advice of the most distinguished professors. I was encouraged to proceed in that way by the fact that in 1874 I happily extracted with the laryngeal forceps from the trachea of a female a leech, which held fast to the mucous membrane covering the first ring. The account of this case appeared in No. 73, of 1874, of *El Anfiteatro Anatómico*, a medical journal published in Madrid at that time.

Although I appreciated the difference that there is between a bloodsucker and a sharp bone firmly impacted in the throat, the example set in a similar case by Prof.

Cohen, whose knowledge in laryngology is so very well known and respected all over the world, authorized me to make the experiment.

Had not the bone been so firmly embedded it would have come out at the first trial, and the boy's sufferings would have come to an end without having to run the risks that are inseparable from tracheotomy.

Therefore, my opinion is that in cases of a similar nature, before resorting to the knife, it is commendable to use the forceps in a prudential manner, and if there is nothing gained there need be no fear of loss.

When the extra-laryngeal operation becomes indicated, it is necessary to choose between tracheotomy and laryngotomy.

It is true that, by performing the latter, the exact place where the foreign body is lodged can be reached; it is also certain that the thyroid cartilage can be more easily laid bare than the trachea, because the former is more on the surface, and the tissues with which it is covered are less important: but we all know that the exact division in the middle line of the thyroid cartilage requires not only skill, but also good luck, and that without both combined the deviation of the edge of the instrument is almost certain, on account of the irregular movements of the larynx; and, no matter how small this deviation may be, one of the vocal cords may be injured, and aphonia, or at least dysphonia, be unavoidable.

Besides, many authors recommend not to open the larynx without having previously opened the trachea, because this is the only way of operating with certainty and without danger, inside of the organ of the voice. All these considerations compelled me to choose tracheotomy, leaving in case of necessity recourse to laryngotomy in reserve.

I did not search for the bone through the opening in the trachea immediately after the operation, for fear of exciting an inflammation that would go from the trachea to the bronchi, because it is well known that the bad success in many tracheotomies is due to this accident. For this reason I looked for the bone very prudentially, and for a very few moments only on the two following days, abandoning the

search as soon as no practical success could be seen; I waited for the healing of the wound to operate laryngoscopically. There was no cause to be in haste: the breathing was insured through the canula, and I had read that, without great danger, a bone had been in the larynx for two years.

I was in hope to relieve my little patient long before that time, and it has been seen that success crowned my hopes. In this case, and in several other similar ones, I have noticed that a few days after tracheotomy the larynx acquires a sensitiveness which it did not possess before. When the boy first came to my office, on the 26th of August, he let me have a fair look at the bone, and even catch hold of it; but on coming back on the 11th of September I had great trouble to examine it, and I could not then introduce the forceps. This extraordinary laryngeal irritability I consider is due to the mucous membrane having lost the habitude of contact with atmospherical air, which is an exciting fluid on account of the oxygen that enters into its composition. It is convenient for the practitioner not to forget this circumstance, which will compel him to wait patiently till the larynx gets again used to the passage of the air and to the contact of instruments.

Finally, I have to blame myself for not having taken out the canula when I was looking for the bone every where else. Had it struck my mind to look through the tracheal opening, I should have found it, and the lad would not have been exposed, for three days, to the liability to obstruction of a bronchus and all its terrible consequences.

HYPODERMIC MEDICATION IN CATARRH.

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THE subject of nasal catarrh is one about which so much has been compiled by many an able writer, and in the treatment of which so many have labored with but a scant recompense of success, that it is hardly to be expected that a single step remains which has not at least been tried by some one, so that in bringing forward hypodermic medication as new, it would perhaps be more correct to say that I have not been able to find any record of its previous use in catarrh.

Although Dr. Jarvis' operation has added so much to the treatment of the disease, yet it does not accomplish everything. There is no doubt that the feeling of relief must be great to a patient whose posterior nares have been occluded by hypertrophic tissue, and who is relieved of this barrier against the free passage of the breath. Much hypertrophied tissue may be thus removed by the snare, cautery, or caustic, and the heretofore tortuous passages may be straightened; but though this removes many of the sequelæ of catarrh, it neither removes the disease nor its cause.

Also, the turbinated bones and their thickened coverings do not always obstruct the nasal passages. In some of the worst cases of catarrh that I have seen, cases of long standing, and characterized by their obstinacy, nasal breathing was easily accomplished, and the nasal passages were fully patent from one end to the other.

Besides the wholesale destruction of mucous membrane, which is becoming so popular, something must be done for the treatment of the disease itself. Unless we convert the nares into two cicatricial canals by cauterizing or searing all of their mucous surfaces, we will still have membrane enough left to secrete catarrhal mucus.

That, apart from the systemic treatment of catarrh, what should be aimed at should be the decrease of the follicular secretion, by checking the blood supply, is sufficiently shown by the immense number of astringents in general use, but no medication seems to me effectually to do this, no matter in what form applied; their action is slight, superficial, and not by any means lasting.

In nearly two years of the daily treatment of catarrh, I have faithfully labored through the long list of mineral and vegetable astringents, until I have come almost to agree with the popular belief that catarrh is incurable.

I may have found sprays not sufficiently concentrated, but the superiority of powders did not by any means compensate for the disadvantage of the irritation that they produced in the throat.

For I had commenced with sprays, then changed to powders, and these in turn I gave up for mixtures with glycerine.

In the menstruum of glycerine I found a better form of medication, for these glycerites remained longer in contact with the diseased surfaces, and thus perhaps more absorption took place.

But the fault with local applications certainly lies in the fact that the diseased membrane does not absorb the medication as it should. It remains in contact with the surface for a while, and is then perhaps blown out of the nares, or washed away by the secretions without exerting any action on the underlying capillary supply.

Believing that the blood supply is the most prominent factor in keeping up the disease, however little it might have aided in causing it, I argued that to check this flow of blood would be to attack one of the supporters of the disease, and this seemed to me only possible of accomplish-

ment through the agency of some drug which would affect the coats of the smaller vessels.

In ergot I believed I had the best agent of the kind, if it could be properly used without affecting the other parts of the body besides those under treatment—this particularly in the case of the heart, uterus, and other involuntary muscular structures.

Although it is not by any means a recent work, yet the monograph of Professor Bartholow on "Hypodermatic Medication" was the most recent publication on the subject which I could obtain. The learned author states generally that the injected medicine acts systemically, and affects the part that receives it no more than the system at large; but in several instances he acknowledges that there is a certain amount of local action. This is no doubt proportionally greater in small than in large doses, at least I have so found it, and in making use of these injections I have rarely found any systemic effect.

It seemed, then, to me that in the hypodermic injection of ergotin I had found the means best suited to carry out my theory of astringing the capillary system of the pituitary membrane by purely local means.

The formula for the injection which I have used is one contained in Professor Bartholow's work—except that I have so far modified it as to render it more fluid, by increasing the amount of water, so that five minims of the injection should represent $\frac{1}{12}$ grain of ergotin; the formula is as follows:

R	Ergotin,	℥ xv.	
	Glycerin,	3 v.	
	Aquæ,	3 xi.	℥

The syringe which I had made for this use is of the ordinary shape, rather larger, however, and fitted with three finger-rings: one for the thumb on the end of the rod, and two on the sides of the syringe for the index and middle fingers. Both the glass barrel and the rod of the instrument are graduated, though of course one of these scales is unnecessary.

Of needles I have used three shapes: one straight, for direct use through the anterior nares; one is largely curved for use behind the soft palate; and the third is straight, with a small crook at the end to inject behind any intervening object. All of these needles are long, as of course they should be on account of the remoteness from the surface of the affected parts.

One of the ordinary forms of nasal speculum is required—a self-retaining one preferably.

In filling the syringe with the injection, preparatory to using it, the great length of the needles necessitates care in order that all the air may be excluded from the instrument, and it is ordinarily my custom to entirely fill the barrel of the syringe and waste most of this injection in freeing the instrument from air.

In making the injection through the anterior nares I select some part which seems particularly swollen and puffy. I gently pass the needle into the submucous tissue, and slowly empty it; this is usually a dose of five minims.

In making the injection through the mouth, it is necessary to hook the curved needle in behind some protruding part, as the soft palate.

On account of the thinness of the tissues covering the septum, I have seldom made an injection into that part.

Unless it appears contra-indicated by constitutional delicacy in the patient, I frequently make a second injection into the other nostril, and I have made as many as three, when I have noticed that some of the solution was wasted through leakage around the needle or after it was withdrawn.

Although patients are apt to feel nervous during this procedure, and even though there are many who will positively object to it, yet the pain incident to the introduction of the needle is very slight. It is to be supposed that the same pathological condition which would deprive the patient of the sense of smell by blunting the sensibility of the olfactory nerve terminations, would also to some extent blunt the sensory acuteness of the tri-facial. Sometimes after the operation there is a little sense of smarting about

the puncture, and there is invariably hemorrhage ; indeed this must necessarily be so in a membrane generally well marked by its hyperæmia, or at least by its congestion. This slight hemorrhage is, however, soon arrested or stops spontaneously.

The hemorrhage from the puncture is unquestionably the most formidable obstacle that I have met with, for besides distressing and in some cases frightening the patient, it doubtless washes away much of the injected solution. This unknown quantity renders the procedure much more uncertain than it otherwise would be, for it is impossible to say exactly how much injection remains in the tissues, and though it might seem better to repeat the injection it is not always safe to do so.

In checking the epistaxis I have never had recourse to astringents ; it has only been necessary to place a small plug of cotton between the lip and the teeth, close up against the septum of the nose, on the side which has been injected, thus compressing the circulation from the superior coronary and its branches in the anterior nares.

I generally instruct the patient to return in two days, and it is very unusual not to find some effect from the treatment. There is usually a marked diminution in the puffy look of the membrane, and the patient is apt to state on being questioned that the secretion has not been so great as usual. Sometimes it is the posterior, sometimes the anterior nares which are most relieved, for the point of the injection has really less to do with its effect on the adjacent parts than would at first be supposed.

The successful medication of a chronic catarrh is not, however, an affair of one or two injections ; many and oft-repeated applications must be made before much effect on the disease is noticed.

Of course the ordinary measures for cleansing the passages should be resorted to. I use ordinarily the posterior nares syringe.

Gradually, in cases in which the treatment is continued, a diminution of secretion will be observed, a slow return to a more healthy appearance of the membrane, a shrinkage

over the salient points, as the turbinated bones; and nasal breathing is usually accomplished without effort.

Often this treatment works much slower, and the effects observed are not by any means encouraging. After appearing to check the secretion for some days, it will then seem to lose all control, and even though the amelioration of the patient's condition may be great, yet the cure lacks completion, and one is tempted to abandon the treatment. It is only by the greatest perseverance, in some of these cases, that recovery is reached.

That there are relapses is of course true—in what line of treatment do they not occur?—but that these are few, and that they finally recover after a second or third resumption of the treatment, I have found to be the case.

Many cases do not return to be treated after one or two injections, and this is a trouble with most dispensary classes, so that the results do not show a good average for the number of cases treated. In some cases the patients after stating that they were greatly benefited, refused to continue the treatment on account of the slight smarting produced by the puncture of the needle.

As regards the treatment of catarrh in children, I do not think that hypodermic medication is at all adapted to their needs. Certainly in the very young the safe performance of the operation would be difficult on account of the pain involved, and the exhibition of ergotin would be too uncertain and variable an experiment to be within the bounds of safety. Nor is so radical a form of treatment necessary or indicated in most young patients. The disease not being so deep seated, nor the pathological changes so great as in adults, the ordinary forms of treatment seem to be all that is required.

I greatly feared, when I commenced this treatment, the danger of abscess, but after making many injections, I can say, that I do not believe that it has ever occurred with any of my patients. This I believe to be greatly due to the scrupulous care of the instruments used, and the careful filtering of the solution, also carbolizing the needle before introducing it.

Prior to commencing these injections I had been frequently warned of the danger occurring in some cases of injection of ergotin. One of my informants, a medical friend, having made an injection of $\frac{1}{8}$ grain in a case of hæmoptysis, he found alarming heart failure after doing so. Also, since I have been pursuing this treatment, another colleague used my syringe and solution of ergot to inject a tumor of the cervix uteri; in this case also there was great prostration and syncope, although the amount introduced represented only $\frac{1}{12}$ grain of ergotin.

I have never been unfortunate enough to find the least trouble of this kind, except in one case (Case 6), that of a woman three months advanced in pregnancy, and who was suffering somewhat from the vomiting due to her condition. In this case, on one occasion, after the fifth or sixth injection, there appeared to be some little unpleasant sensation experienced, but the dose injected was rather larger than usual, and it must be acknowledged that the case was not a very favorable one.

The results of the treatment may be best judged of from the following selected cases which I take the liberty of enumerating. They are not selected on account of their favorable result, but only as being cases where the treatment was continued far enough to see what the probable result would be.

CASE 1.—Hattie F., aged nineteen, an actress, out-patient of the Boston Dispensary, came to the throat class on the 29th of last October. She was suffering from nasal catarrh of some years' standing. This she had acquired after a history of many neglected attacks of coryza, to which she was subject from having to sit in currents of not the purest air on the stage of a variety theatre. She also had a subacute laryngitis. This latter affection, however, promptly yielded to treatment, but not so the catarrh.

The nasal passages were almost occluded, and it was with great difficulty that nasal breathing was possible. The mucous membrane covering the turbinated bones did not appear to be more hypertrophied than all the lining membrane of the nose. The stenosis was general. After using the nasal syringe, applications of the glycerite of tannin were made posteriorly and an-

teriorly. At the same time general tonics were prescribed, the patient being somewhat anæmic. This treatment was persisted in for some time without much benefit; the breathing was somewhat better, but the secretion remained excessive as before. Finally I concluded to try the hypodermic injection of ergotin. At first there was little or no effect, and it was only after making four or five applications that the patient became aware of the improvement. Finally, in January last she left the class to all appearances well, since which time I have not seen her, but have learned that there has been no relapse.

This was the first case with which I used the injection.

CASE 2.—Annie M., aged twenty-three, corset-maker, came to the dispensary Dec. 31st. Had suffered five years from catarrh. She worked in a close atmosphere, and suffered much from the inhalation of dust. She was put on constitutional treatment and the topical application of iodine with glycerine, according to Dr. Robinson's formula—there being a good deal of adenoid growth in the vault of the pharynx. After coming to the dispensary a few times, she complained that she could not afford to lose so much time from her work.

She was then furnished with mops of cotton, and instructed how to make the application herself. This she appeared quite able to do, and was lost sight of for some time. In about three weeks, however, she returned; not having found much improvement, she had abandoned the treatment.

The patient was then put on the hypodermic medication, with little or no improvement for four or five days. She complained a good deal of epistaxis and a sore feeling in the nose after the frequent use of the needle. In about three weeks she left the clinic, declaring that she felt perfectly well. She returned again in the latter part of February, having had a slight relapse. Since then has remained away until recently, when she again reported that she felt quite well.

CASE 3.—Mathew F., aged eighteen, a recently landed Irish lad, dirty and anæmic, appeared at the dispensary Jan. 17th with the most remarkable nose I have ever seen. The nasal bones were large and widely separated, leaving passages which would almost admit the finger. There was no stenosis in this case, never had been, but there was the most wonderful accumulation of secretions that I ever had the misfortune to see—solid crusts so adherent to

the mucous membrane that it bled when they were removed with the cotton mop, for it was impossible to sweep them away with either the syringe or spray. The patient was put on the glycerite treatment for only a short period, and then changed to the ergotin. The improvement was great and rapid, although the epistaxis was severe and the patient's attendance was far from regular. He was discharged, however, during the first week of last March, to all appearances entirely cured, since which period he has not reappeared at the dispensary.

CASE 4.—Kate F., domestic, aged twenty-two years, appeared at the dispensary February 9th. She was a patient in seemingly robust health, but rather plethoric. Complained of dropping of mucus in the throat and difficulty of breathing through the nose while in the open air. Upon examination I found the anterior nares a good deal obstructed by hypertrophied tissue, in parts being so much thickened as to touch the septum. Posteriorly there was very little adenoid tissue in the vault of the pharynx. The inferior turbinated bones were somewhat enlarged, but, as I afterward found, not sufficiently so to retain the wire of the Jarvis snare. She was soon put on the hypodermic injection, and derived some benefit from it, but the treatment had to be abandoned on account of the severe neuralgic pains it seemed to induce over the nose and eyes. The snare having proved unsuccessful, recourse was had to cauterization with glacial acetic acid as far as could be reached anteriorly; this was repeated four or five times, and on the 25th March the patient left the dispensary evidently much relieved; whether this result would have been accomplished by the ergot alone, could it have been persisted in, is only a matter of conjecture.

CASE 5.—Hugh F., aged nineteen years, appeared at the dispensary March 3d. Stated that he could not remember when he did not suffer from catarrh. He was ill nourished. Was put on constitutional use of iron and quinine, and the topical application of the glycerite of tannin. This local treatment was soon changed to the subcutaneous injection of ergotin. On the 20th March the patient declared himself perfectly well, and refused all further injections, on account of the epistaxis, although he admitted that he had been entirely cured by the treatment.

CASE 6.—Annie M., aged twenty-eight, French-Canadian, pregnant, appeared at the class March 1st, suffering with catarrhal laryngitis and nasal catarrh. The laryngitis soon disappeared

under treatment, and the catarrh greatly improved under the injection of ergotin. Gradually the discharge diminished. The constitutional treatment was greatly interfered with by the vomiting of pregnancy. The fifth injection also appeared to produce some constitutional disturbance, or, as the patient expressed it, a "*serrement du cœur*." Remembering the possible effect on a gravid uterus of ergot, which might be taken up more than was expected, I gave up the hypodermic medication and used the ordinary application of astringents.

CASE 7.—John G., aged twelve years, appeared at the Boston Dispensary March 22d. Complained of dropping in the throat and inability to breathe through the nose. Had only been troubled in this way about six months. The nostrils were much reddened, and much hypertrophic mucous membrane was anteriorly brought to view, also evidence of a very abundant secretion. Posteriorly there was not much thickening. The patient was a robust child, and after cleansing the passages the injection was used anteriorly; although the pain was somewhat complained of, this treatment was continued with marked effect until the patient was discharged, to all appearances cured, on the 29th March, just one week after the commencement of the treatment.

CASE 8.—Mary F., dressmaker, aged twenty-three years, appeared March 22d. Complained of the nose being "stopped up," and of a constant discharge of mucus. The bony structure of the nose appeared to be greatly pinched together, so that the meatus was very small naturally; besides this, the spongy membrane greatly encroached on the already too small passages. She was treated hypodermically with the ergotin every other day, and after the first three applications seemed greatly benefited; after this, however, the disease appeared to remain at a standstill, and nothing appeared to be gained by subsequent medication. Although she was greatly relieved, and was only troubled in the mornings, still she was not by any means well, and it might with justice be said that the treatment had entirely failed in this instance at least.

The few cases that I have cited are sufficient to show to some slight extent the effect of the mode of treatment used. That this treatment is much of an advance I do not by any means presume to state, for in considering the foregoing it will be seen that one entire class of cases—that

is, children—is entirely excluded on account of their age ; that many give up the treatment from timidity and natural intolerance of the slight pain ; and that in a third class it appears to fall short of a final and lasting result.

But although this, of course, large percentage of the number of catarrhal cases treated is thrown out, yet the number of those that remain is sufficiently striking to make the treatment at least worth the trying,—certainly in those cases where the treatment by Dr. Jarvis' snare is inapplicable, and certainly there are many of these.

I claim that if in the spongy and hypertrophied mucous membrane of the nose, an atrophy or shrinkage can be produced by curtailing its superabundant blood supply, it is far better to make use of this means than to produce cicatricial contractions from burning or escharotics, or to widen the passages by tearing off the lining membrane.

Without discussing the direct action of the treatment on the catarrhal discharge, it certainly possesses the advantage that it obviates a surgical procedure with possible bad results, for the nose cannot always be “burnt out” without setting up inflammation, and hemorrhage from the posterior nares though seldom dangerous is often troublesome.

The hypodermic medication in catarrh is a mode of a treatment which, although it has not by any means fulfilled the too sanguine expectations which I formed for it, has not by any means entirely failed to fulfil the ends hoped for.

THE USE OF COLD IN DISEASES OF THE UPPER AIR-PASSAGES.

By S. H. CHAPMAN, M.D.,

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COLD has long been used to a limited degree as a therapeutic agent in the treatment of various diseases of the upper air-passages.

The customary method has been by spray from water holding in solution certain drugs; another less frequent method has been by ice-pellets; and a third method, still less frequent, by application of cold externally. A considerable experience, during the last seven years, with the use of cold applied in different ways, has given me such trust in its efficacy as a therapeutic agent, that I venture to call to it the attention of the readers of the ARCHIVES.

In order to do so with the least expenditure of time, it will be best to state, first, the ways of using cold to which I have been accustomed, and second, the diseases to which it is applicable, and third, certain considerations which seem to be connected with the subject.

I.—As to the ways of using cold :

a. The application of extreme cold to the exterior of the larynx.

This method, modified from the original suggestion of a Glasgow physician of note, consists of the use of a fine mixture of salt and ice enclosed and sealed in a delicate rubber bag, four inches long by one broad, which is so made as to carry tapes at the ends with which to tie the bag about the neck.

Made in this way the bag will remain adjusted to the larynx in any position of the body.

In order that the cold may not extend beyond the parts for which it is intended, a felt pad is used behind it; that is, a pad made of several thicknesses of felt, six inches by three in size, out of the centre of which a space has been cut three inches long by three-quarters broad.

This space is sufficiently large to allow the bag, when partly filled, to lie within the opening against the larynx, while the surrounding felt protects the adjacent parts.

This pad is kept in place by loops through which the tapes are run.

b. Use of frozen wine.

Two kinds of wine are of much value frozen and used in the form of ice-pellets: the one is champagne, or any other sparkling wine; the other any red wine of fair quality, possessing acid and astringent properties.

The method of preparing them is sufficiently simple.

Placed in ice and salt the wine is soon frozen, when, if the bottle be skilfully broken, the wine can be got at and used in its frozen state. The sparkling wines are of value not only on account of the cold, but also for their stimulant properties, due partly to the alcohol and partly, but more especially, to the latent carbonic-acid gas which is held fast by the ice, and which, on being set free in, and by the warmth of, the mouth, comes thus into direct contact with the mucous membrane. Champagne is undoubtedly the best sparkling wine, since it holds more gas; while Bordeaux of fair grade is the best still wine, since it possesses a larger proportion of astringency and acidity, compared to the amount of alcohol.

c. Iced spray.

This is a modification only of the customary spray, differing from it in that the temperature is lowered from that of the office in which it is used to almost the freezing point. Any ordinary solution which is used in spray at a moderate temperature may be applied equally well cooled to near the freezing point.

Two ways may be adopted for obtaining this temperature :

the one is by simply adding a little finely divided ice to the solution at the time of using it; the other, more thorough but requiring most care, is this:

A thermometer should be adjusted to the spray apparatus. The instrument, thus complete, must be placed in ice and salt mixture, and when the mercury approaches the freezing point it must be withdrawn and used immediately. The advantage of this method is, that the contained solution is not weakened by additions, nor is it necessary to use a small quantity of solution at a time; but the instrument may be charged with sufficient quantity to last for some time.

d. The double nasal catheter, made like the double urethral catheter, through which a stream of very cold water may be made to run for any length of time required.

This method has been so distasteful to patients, however, that, except in cases where dilatation as well as cold is indicated, it has been superseded by

e, a simpler and equally effective method.

This consists of a very narrow and elongated inhaler, packed in ice and salt mixture, through which a stream of cold air is forced by a hand-bulb. The best inhaler is made of an eight-inch test-tube, into which a cork is fitted, containing two glass tubes, one of which extends to within one quarter of an inch of the bottom of the test-tube, and the other but through the cork. The farther end of this shorter tube—the mouth- or nose-piece—is fitted with a ring of rubber tubing, and is not more than two inches from the cork.

Now, if an ordinary air-bulb be attached to the other tube, by means of intermediate rubber tubing, the instrument will be complete. If this inhaler be buried in any vessel containing ice and salt mixture, the air within will be so cooled that with every compression of the air-bulb a puff of cold, moderately dry air will escape from the farther opening. Thus may be obtained a dilating force and pressure of very cold air.

This simple instrument is the outgrowth of some extended experiments with coils of glass and metal, made with the

hope of devising an inhaler which would give my patients a dry, cold air like that of a clear, cold winter's day.

II.—While recounting the diseases for which the application of cold seems most suitable, allow me to give a short account of some of the cases which have been thereby either improved or cured.

a. Diseases of the larynx of a malignant type, perichondritis, tubercular laryngitis, laryngeal diphtheria have been much benefited by the first method of application, namely, that of external use of extreme cold.

The reasons for this are obvious: the progress of the disease is thereby retarded—the process of inflammation being checked by cold,—and the nerves are so chilled that pain and spasm are greatly diminished.

CASE 1.—Perichondritis; age twenty-one. Pain intense; no food or fluid taken for four days when first seen; ice-bag used almost constantly for one month; quite constantly during the first ten days.

The result of this treatment was gratifying in many ways; the pain diminished greatly, doing away with the necessity of anodynes; the inflammation was checked; the dyspnœa, which was a marked symptom of the case, decreased; food in fluid form could be taken comfortably within twenty-four hours after the first use of the ice-bag; the cold destroyed the sensitiveness of the nerves to such a degree that a needle was repeatedly thrust into the larynx from the external surface without painful sensation, and yet the tissues remained in good condition; the abscess formed during the progress of the disease was twice punctured without pain; the patient recovered from this particular form of the disease, but died several months later of tubercular disease of the lungs, which co-existed with the laryngeal affection, although at first in mild degree.

CASE 2.—Lad, ten years old. Laryngeal diphtheria; well-marked membrane over entire left side of larynx, and encircling its brim. Local cold applied steadily for one week, while energetic constitutional treatment was also used; membrane ceased to

spread, and on the fourth day came away during a severe attack of coughing. Recovery.

In one other case of the same disease, this treatment was unsuccessful; but its failure seemed to be due to delayed use. In several cases of laryngeal phthisis, and in two of malignant growth, this method has served to diminish greatly the pain and spasm.

It would seem, therefore, that local use of extreme cold may be of service in the treatment of all chronic cases where severe pain coexists, and also in acute specific inflammations.

b. Living in a university town, I have occasion to treat at times cases among the students which may be called "acute laryngeal and pharyngeal rheumatism." Just as an undue use of muscles of other parts of the body is often followed by painful and difficult motion, so undue use of the throat in chorus and open-air singing and in practice of elocution is often followed by difficulty in swallowing, hoarse or weak voice, and an intensely congested condition of the mucous membrane. This complaint is not confined to students, but is equally common among public lecturers, preachers, auctioneers, brokers, and others who are compelled at times to strain the muscles of the throat. Whether in the acute stage with simple congestion of the mucous membrane, or in the chronic condition with a secondary inflammation of the mucous membrane, cold is far preferable as an application to heat. For the former, frozen champagne is the best remedy; for the latter, spray holding in solution alterative astringents, and of a temperature near the freezing point.

Among numerous cases of this description, allow me to mention one:

Four years since, a student whose essay had been accepted as one of the fortunate essays called "Townsend's," was engaged several days with the professor of elocution in "speaking his piece," when suddenly, on the day before the grand speaking was to take place, his voice became totally lost. On applying to me, I found no constitutional disturbance, but a severe local congestion, difficulty in swallow-

ing, and such œdema of the larynx that the vocal cords could not be properly adjusted. The remedy used was frozen champagne, of which the patient used pellets continuously for many hours. He was ordered not to speak at all, until just before going to the hall; to use the ice as constantly as possible up to that moment. I had the curiosity to go to hear or, as I thought, possibly only to *see* him act his piece,—as this was my first venture with that kind of treatment,—and was agreeably surprised to hear a fairly strong, clear voice during a performance of twenty minutes. Since then this method has been in constant use, with one or another kind of wine, the preference being given to the sparkling wines.

c. There is a class of cases with which physicians are apt to be overrun during the changeable weather of spring and autumn in a temperate climate,—cases of which the following is a fair representative :

He may breakfast in the morning quite well, when suddenly he experiences a difficulty in breathing through the nose, or his throat fills up, and the voice becomes husky; in short, a case of acute congestion of the upper air-passages, due to an irregular circulation, and the irritating effect of our changeful atmosphere.

For all such cases, cold in the shape of spray from simple water, or as air alone given from the inhaler, is far the best local remedy in my hands.

If there exist already an inflammation before this treatment be adopted, I am in the habit of using both means: namely, the spray first, in order thoroughly to cleanse the mucous membranes; and afterward the inhaler for a long continuous period.

d. Chronic nasal stenosis due to all causes except the actual hyperplasia of the tissues and abnormal formations, yields more readily and pleasantly to treatment by cold than by any other means. The stenosis resulting from a turgid condition of the nasal veins, due to pregnancy, to malaria, to hay-fever, to impediment to free venous current in some other part of the body, is specially referred to in this class.

The double catheter is very useful in such cases, but is not ordinarily essential, as experience shows that the prolonged use of the cold inhaler produces a like result in a somewhat longer time. I have had some interesting cases of this sort, two of which I will venture to relate.

CASE 1.—A lady desired me to cure her of a severe cold in the head, producing nasal stenosis almost complete, with discharge of large quantities of a limpid fluid. She remarked that she did not think it was a plain cold; that she had suffered for almost nine months with it before, when pregnant; that this had occurred twice, and she now was afraid that the same cause was at fault; that she would like to have it cured, because her distress was great. She had been treated before for it, with inhalers, dilatation, caustics, and washes, but to no purpose.

The cold spray with *Hamamelis* fld. ext. in solution, used several times daily, has succeeded, not in curing the complaint altogether, but in diminishing it so much that the patient can breathe through the nose in all postures while not exercising; but the cessation of its use allows the affection to return to its former unpleasant condition.

CASE 2.—Young lady with nasal stenosis, occurring at the time of an attack of hay fever during the past summer. After that complaint had disappeared the stenosis remained. It was due to fulness of the anterior nasal veins. Dilatation and astringents were of no avail, nor did constitutional treatment affect it in the least; but the cold spray with boracic acid in solution entirely cured the complaint in about two weeks.

III.—The considerations connected with this subject seem to be these: Cold is of much more value as a therapeutic agent than is generally acknowledged, because:

a. It is specially applicable to a very changeable climate, enabling the patient to still continue his daily work, which oftentimes includes exposure to the elements.

This cannot be granted of the use of heat.

b. It is so easily applied, and the apparatus necessary is so simple, that patients are capable of treating themselves.

c. It is a valuable aid to other treatment, enabling us to use stronger solutions than is customary. Thus, in cases of chronic rhinitis with ulceration, it is my habit to use a spray

of very strong solution of silver nitrate. This would produce intense pain, distress, and severe lachrymation for many hours, were this application not followed immediately by a prolonged use of very cold spray. Thus, in one case of diphtheria where the membrane extended from within the nasal cavity to the posterior nasal space and over the entire pharynx, I succeeded in destroying it by using a spray of saturated silver-nitrate solution; the pain for a few moments was intense, but subsided speedily under the use of the cold spray.

d. Cold is a far more agreeable agent than heat.

On asking patients in whose cases both methods have been used, which they prefer, they invariably reply: "The cold, by all means."

THE PALATAL TONSILS IN THEIR HYPER-TROPHIED CONDITION.

By D. N. RANKIN, A.M., M.D.,

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THE tonsils are two ovoid glands, similar in shape to an almond, and situated, one on each side of the fauces, between the anterior and posterior pillars of the velum palati; they vary considerably in size in different individuals. Half an inch long, and one third of an inch wide, is considered an average size. Their inner surface, projecting into the isthmus of the throat, is covered by mucous membrane, in which are the orifices of from twelve to fifteen cells, leading into small recesses, from which numerous follicles branch out into the substance of the gland. These follicles are lined by a continuation of the mucous membrane of the pharynx, covered by epithelium, their walls being formed by a layer of closed capsules embedded in submucous tissue. From these orifices, on pressure, a grayish, viscid mucus oozes. This secretion is destined to facilitate deglutition, by lubricating the isthmus faucium, and is forced out during the passage of the alimentary bolus.

Externally the tonsils are in relation with the inner surface of the superior constrictors, beyond which are the internal carotids and ascending pharyngeal arteries, and correspond to the angle of the lower jaw. The arteries supplying the tonsils, are the dorsalis linguæ, the ascending palatine, and tonsillar from the facial, the ascending pharyngeal from the external carotid, and the descending palatine branch of the internal maxillary.

The veins terminate in the tonsillar plexus, on the outer side of the tonsil.

The nerves are derived from the fifth, and from the glosso-pharyngeal.

Hypertrophy often results from repeated attacks of acute inflammation of the tonsils; in some instances it is congenital, and occasionally it assumes an hereditary influence, especially in persons of a strumous habit. Between the ages of five and twelve years the largest number is observed, and they gradually increase in size until the fifteenth year; after the thirtieth year there are very few cases brought to your notice. Males are more frequently attacked than females, doubtless owing to their greater exposure to all kinds of weather. Both tonsils are often similarly affected, though occasionally you find but one attacked. This hypertrophied condition of the tonsils may be kept up by various causes, such as a morbid growth of the cellular tissue, or inflammatory engorgement kept up by vascular injection.

A serous cyst, filled with a thin albuminous substance, is sometimes, though very rarely, discovered in the tonsils. Occasionally, a fibrous polyp makes its appearance.

A chronic abscess is sometimes observed in persons of a strumous diathesis; especially in association with tuberculosis of the lungs. When malignant disease has made its appearance in other organs, it has been very rarely discovered in the tonsils.

We meet this disease with and without induration. In children it generally exists without induration; when it arises in consequence of inflammation, and in elderly persons, the enlargement is generally accompanied by induration.

In whatever form we meet it, this condition of the tonsils should not be regarded with indifference, nor treated with neglect.

It is a frequent cause of a troublesome cough in children of a strumous habit; the continued cough tends to produce deformity of the shoulders and walls of the thorax (pigeon breast), which extends to the spine, and after a while

results in posterior curvature of the upper dorsal vertebræ. These symptoms can be very readily accounted for, as this condition of the tonsils tends to diminish the calibre of the air-tube to such a degree as to render the act of respiration incomplete. There are some persons in whom the tonsils are so hypertrophied as to almost meet together, and to render deglutition difficult, and breathing through the mouth, especially during sleep, laborious.

A slight additional enlargement may readily arise from catching cold, which may bring on the worst features of acute tonsillitis, with great suffering and imminent danger.

On the other hand, we frequently have cases presented, especially in children, in which the tonsils remain enlarged after scarlet fever, or even acute tonsillitis, and in which these glands, without any treatment, resume their normal size. A knowledge of this fact, which I have learned in my own practice, will very properly induce us to pause before we perform the operation of excision, unless the call be urgent; even then, the removal of one, even when both are enlarged, will often suffice to render the patient comfortable.

As has already been mentioned, we will find cases in which there exists a morbid state of the follicles, associated with hypertrophy of the tonsils; here we will find depraved secretions of either a fatty or sebaceous character, consisting of hardened mucus, or of saline substances, such as phosphate of lime. As an instance of the latter condition, Prof. Sayre reports a case in the *N. Y. Medical Record*, vol. ii, p. 413, upon which he was called to operate. He states, "he found the patient, aged sixty, sitting up in bed, with all the symptoms of impending suffocation, her expression was anxious, and her respiratory efforts were painfully difficult. Upon examining her throat, there was to be seen an œdematous condition of the tonsils, the epiglottis, and the fossa beside the epiglottis. He immediately slit open the œdematous membrane with the bistoury, and in doing so felt the blade strike upon a roughened, hard substance. After fishing some time, he ultimately succeeded in removing it by

means of a bent probe. On examination it proved to be a large concretion of a dark color, and composed of carbonate of lime mostly, and a large amount of dark animal matter, which, upon examination by the microscope, was found to be composed of a mass of ill-defined cells or corpuscles, intermingled with a few pavement epithelial scales." Prof. Gross, in his "Elements of Pathological Anatomy," when speaking of earthy concretions in the tonsils, says: "They usually have a white, grayish, or light brownish color, a spherical shape, and a finely tuberculated surface, varying in size from that of a mustard-seed to that of a cherry. Sometimes the mucous concretions become putrid, and give rise to an insupportable fœtor of the breath. When the mouth is well opened and the tongue depressed, these concretions distend the tonsils, and dilate the lacunæ to such a degree, that they may be readily seen with the naked eye."

Fatty masses, resembling in color and consistence the granules of phthisis expectoration, are secreted from the follicles of tonsils of persons who are otherwise in good health. These granules may be distinguished from the phthisical expectoration by heating the substance on paper; if the secretion be derived from the follicles of the pharynx or tonsils, it is sebaceous, and leaves a greasy stain on the paper, which is not the case with the pulmonary or tubercular granules.

Hypertrophied tonsils are not unfrequently the cause of impeded hearing. It is only proper to state here, that the more modern aurists consider that the hypertrophied tonsils have no agency in producing hardness of hearing; but that with such a condition, and disordered secretion of the nasopharynx, there is a strong tendency for the catarrhal inflammation to extend to the middle ears.

Simple inspection, even with the aid of the laryngoscope, is not enough to apprise us of the degree of projection of the tonsils, as they are often hidden by the anterior pillars of the palatine arches and the soft palate; when these parts are examined by the finger, frequently the enlarged tonsil will be detected growing upward, and pressing on the

mouths of the Eustachian tubes. On the other hand, this enlargement may tend downward. If the upper margin of the hypertrophied tonsil be visible, thick speech only is the result, but if the growth extends, so as to interfere with the movements of the uvula and soft palate, then we have associated with thickened speech, nasal speech. In the treatment of this complaint, our first and chief endeavor is to get rid of this great obstruction, preventing in a great measure the ingress and egress of the air we breathe.

A general, local, and operative treatment may be found necessary to accomplish this result. If the patient is of a strumous diathesis, a general alterative plan of treatment should be pursued, using, say, the iodide of potassium, syr. iodide of iron, cod-liver oil, etc., with good nutritious diet, sea-air and bathing; at the same time, injections into the gland of iodine, ergot, acetic acid (C. P.), chloride of zinc, or carbolic acid in combination with olive oil $\bar{a}\bar{a}$, by means of a hypodermic syringe—the last of which has, in my hands, sometimes succeeded admirably, especially in cases of young people, in whom absorption is more active. Painting over the tonsils with tr. iodine, a solution of nitrate of silver, 30 grs. to \bar{z} i, to a saturated solution, a solution of perchloride of iron, 3 i to 3 ii to \bar{z} i of water, and chromic acid, has been successfully used. Electrolysis has been quite successful, with some persons, in reducing the enlarged glands. These failing, our only alternative is extirpation of a part of this morbid condition, say one half. Much has been written in favor and against this operation. Mr. Harvey, in his work on “The Ear in Health and Disease,” opposes it on several grounds. He considers the tonsils not merely secreting organs, but that they exercise important sympathies in the economy. The extirpation of part of an hypertrophied tonsil has been accomplished by caustics, the actual cautery, the ligature, and cutting instruments, but the first three are now quite abandoned.

The removal of a part of the hypertrophied tonsils was performed by the ancients, and in different ways: sometimes they tore with their fingers the membrane that covers the tonsils, and then pulled it from the situation it occu-

pies between the anterior and posterior pillars of the velum pendulum palati; when there was too much resistance they seized the diseased tonsil with an instrument curved like a hook, and then cut it away with a bistoury which, Paul of Ægina informs us, was concave on the side corresponding to the tongue. The more modern surgeons for a long time substituted more cruel processes for their removal. The actual cautery had some success for awhile; caustics replaced it, but on account of the danger of their falling into the œsophagus, and the uncertainty of not being able to limit their action, they too were soon banished by all rational practitioners. Then excision with the hook and bistoury, a plan for a long time adopted by Desault, was resumed. Scissors curved on their flat side, a knife curved on its flat surface, and the concave scissors of Levret; Instead of the simple tenaculum used by the ancients, a forceps with double hooks, which, from its description, I presume is the volsella, the instrument so highly recommended for the removal of hypertrophied tonsils by Prof. Gross, in his elaborate and reliable work on surgery. The foregoing plans have been the ones pursued by our predecessors until 1800, then Desault utilized an instrument called the kiotome, first invented to divide the cysts of the bladder. It is described as a cutting blade, concealed in a silver sheath, which, being hollowed at its extremity, there receives and fixes the gland to be extirpated. His plan of proceeding was as follows, in his own words: "First—the patient being seated upon a high chair with the head supported upon the breast of an assistant, the surgeon causes him to open his mouth wide, and, to keep it so, places some solid substance between the teeth, which is secured by an assistant. Second—the tongue depressed by a metal spoon, which is held by another assistant. Third—with a double hook the surgeon seizes the gland, which he draws toward him, raises it up a little, takes the kiotome, engaging the index and middle fingers in the rings, the thumb in the ring at the end makes it slide under it, then engages it in the rounded hollow, at the level of the spot to which the section should correspond. Fourth—when the

portion to be excised is fixed, he draws it more to him, in order to stretch it, presses the instrument against it from below upward, and pushes the blade, which in passing through, performs the section. If it is not complete, which especially happens when the size of the tumor is considerable, the blade is withdrawn, and the kiotome to be reapplied in the same wound that it had made, completes the section. If it is not yet finished a third attempt must be repeated. Fifth—the patient is directed to wash his mouth, and a gargle is prescribed. Such is the disposition of the blade of the kiotome, that when it traverses the hollow, it pushes and fixes solidly the parts to be divided, an advantage that is not possessed by the scissors or the knife, before which these parts recede when they are movable. From thence the difficulty of their section.” As to the ligature, Desault says, it is not proper in general, except for such timid patients as refuse to submit to excision. This method is longer and not less painful than excision, and always occasions more irritation. Moscati once having adopted this plan, very severe pain and inflammation ensued, and the difficulty of swallowing and breathing compelled him to amputate the tumor at the place where the ligature was applied, and all the bad symptoms immediately ceased.

However, it had its partisans. Heister in 1683, and Sharp in 1688, recommended it in certain cases. Some made use of the double pipe or canula of Levret, carrying a noose of silver thread, in which the tumor was engaged, and then constricted by a twisting motion, which by a daily repetition intercepts its circulation and life, and occasions its fall; this, too, had its objections: sometimes the constriction was insufficient, and the inconvenience of allowing so large a body to remain in the mouth was very annoying.

As stated, when efforts at discussion fail, and circumstances are favorable, such as a non-hemorrhagic diathesis, and when there is no acute inflammation of the gland, excision is expedient,—not to remove the entire gland, but merely to extirpate the projecting part. This operation was first performed in this country by Dr. Alexander E. Hosack, of New York.

America claims the credit, and justly too, for inventing the first tonsillotome. In the latter part of the eighteenth century, Dr. Benjamin Bell, of Philadelphia, invented and successfully used a uvula guillotine; it consisted of a flat piece of metal with an elliptical opening at the distal extremity, and a broad semicircular blade, which, when pushed forward, cuts off the uvula; the instrument is fully described in "Bell's Surgery," vol. iv, p. 144. In 1827, Dr. Physick, of Philadelphia, greatly improved and enlarged Bell's uvulatome, and utilized it for the removal of hypertrophied tonsils, denominating it Physick's tonsillotome, his improvement consisting in adding a stout handle at its lower part. (For full description, *vide American Journal of Medical Sciences*, vol. i, p. 262.) Dr. Morell Mackenzie, of London, modified it so that the handle can be applied to either side of the shank, which enables the operator to use the instrument with his right hand for operating upon either tonsil. Numerous attempts have been made to improve this valuable instrument, but thus far they have been unsuccessful. A double tonsillotome has been devised by Dr. Mackenzie, but it has not met with the same success as the one just described.

Starting from the original tonsillotome with the modifications (and they are not a few) suggested by the ingenuity of different devisers, each one doubtless expected to be immortalized by his supposed improvement—among them Drs. Wm. B. Fahnestock, Matthieu, Guersant, Morell Mackenzie, and Frank H. Hamilton stand pre-eminent. As an historical study it certainly is an interesting one. The tonsillotome most generally used throughout the civilized world was the invention of Dr. Wm. B. Fahnestock, of Lancaster, Pennsylvania, in 1832, described by himself in *American Journal of Medical Sciences*, vol. ii, p. 248. It consists of a canula terminating in a circular ring, guarding a blade of similar shape with concentric cutting edge, with a transfixing needle attached. Since its origin, numerous alterations and improvements have been made upon it. Guersant altered the shape from circular to elliptical; he also added the two-pronged transfixing fork. Others made still further

improvements, one of which was substituting a three-pronged transfixing fork, instead of the two-pronged one.

The great aid the galvano-cautery has rendered us in the operation of excising an hypertrophied tonsil certainly entitles it to a prominent place among the means used in making a permanent cure. Its application is especially efficacious, after the tonsillotome has been used, and where hemorrhage in any form may appear. I herewith give, in brief, two cases selected from my note-book, which may not be uninteresting, as showing the various forms this disease may assume, and its termination under treatment.

CASE I.—Hypertrophy of both tonsils. Charles P., æt. eight years, of a delicate figure and lymphatic temperament, son of a prominent flour merchant of Pittsburgh, Penn., came under my care January 5, 1879, for the relief of enlargement of both tonsils, with the following history obtained from his father, who accompanied him to my office. He stated that his son had been troubled with his tonsils since he was four years old, and could assign no cause for it, unless it was repeated colds. The attention of his family physician was frequently called to it, but was always put off with the remark: "Let them alone; Charley will grow out of it." Within the past year, when his son would catch cold, the breathing, especially during sleep, was laborious to the child and distressing to the family. If there was any relief for his son he was determined to have it. Upon examination I discovered both tonsils greatly enlarged, and informed his father that an operation would be necessary to remove the trouble, and advised to have them excised. He could not make up his mind to have the operation performed. I then proposed to him, and with his sanction commenced, a general and local therapeutic treatment, but gave him no assurance of a successful result. He was ordered to take syr. iodide of iron in doses of five drops three times a day, and cod-liver oil two teaspoonfuls three times a day. By means of an hypodermatic syringe, five drops of a mixture composed of carbolic acid one part to glycerine three parts, were injected into each gland every third day, twelve times; a considerable amount of irritation followed each injection, which caused a greater enlargement than was present before the treatment was commenced. Injections every third day of five drops of fld. ext. ergot were substituted for those of carbolic acid and

glycerine ; this procedure was continued for six weeks, with no better result than was obtained by the carbolic acid and glycerine. From the commencement of the treatment the patient had been taking the syr. iodide of iron and cod-liver oil with marked benefit, as his general appearance indicated. I now concluded the only way to get rid of this diseased mass was by excision, and so informed the boy's father. His sanction having been obtained, I operated upon the right tonsil, removing more than one third, or the projecting part, of the gland. I was congratulating myself that the operation had been done successfully, when almost immediately copious hemorrhage commenced. By pressing two fingers of the right hand over the excised surface, and three fingers of the left hand on the neck directly over the gland, I succeeded in holding the bleeding vessels in check, but as soon as the pressure was removed the hemorrhage returned. My galvanocautery battery being convenient and ready for use, an electrode heated to a cherry-red was promptly and thoroughly applied, which promptly checked the bleeding vessels. No solid food was allowed him for five days, and a gargle of a weak solution of tannic acid was prescribed. I deemed an operation upon the left tonsil unnecessary, as the removal of one gave sufficient space for all practical purposes. The alterative and tonic treatment was continued for some six months ; at the end of which time he called to present his thanks for the great relief the operation had given him. The case has not come under my observation since.

CASE 2.—Hypertrophy of both tonsils. Treated by local therapeutics.

James C., æt. thirty years, of an appearance indicating good health, by occupation a machinist, presented himself at my office Oct. 30, 1880, to consult me in reference to obtaining relief from enlarged tonsils. Upon examination they were found to be greatly hypertrophied. I at once suggested their removal by excision ; he would not hear to that. Being obliged to give up the idea of excision, I informed him that there was a possibility of lessening their size by a less painful, but slower plan of treatment ; to this he at once consented. Applications of chromic acid were made to each tonsil every third day, for ten applications, which had the effect of reducing their size at least one third. He was so much relieved and delighted, that he concluded to stop further treatment, promising to call if any return of the hypertrophy

should occur. It may be presumed they have given him no further inconvenience, as I have not heard from him since.

After a general and local therapeutic treatment judiciously and unsuccessfully pursued, the following circumstances should be considered before excision be attempted.

1. Those in which an operation is contra-indicated: I have in my own experience observed cases (and they were not a few) where excision was contra-indicated. The operation should not be made when the glands are inflamed, especially if the patient is of an hemorrhagic diathesis, unless suffocation be threatened.

2. Those where an operation is justifiable and advisable: When from the great size of the glands the patient is in danger of immediate suffocation, in whatever condition they may be found; after all inflammation has been removed; when deafness, impaired speech, or frequent attacks of tonsillitis are produced, the operation should undoubtedly be made, and fully one half of the tonsil be removed, as in my opinion the removal of less does not insure a good result. But one tonsil should be operated on at the same sitting.

3. The most suitable age at which the operation should be done: Experience has taught me that where there are no alarming symptoms present, demanding the operation earlier, between the fifth and eighth years is the time the operation can be done most satisfactorily.

OSSIFICATION OF THE RIGHT ARYTENOID CARTILAGE. SEPARATION AND EXPULSION FOLLOWING THYROTOMY FOR THE REMOVAL OF A PAPILLOMA.*

By CLINTON WAGNER, M.D.,

NEW YORK.

Mr. E., aged fifty-three, stated that in July, 1880, he first observed a slight hoarseness, which he attributed to a cold he had caught about that time.

During the following winter the hoarseness increased, and was accompanied by a short hacking cough, and a tickling sensation in the throat.

He first consulted me in Jan., 1881, at which time there was complete aphonia, unimpaired breathing, and the appearance of robust health.

A laryngoscopic examination revealed a large papilloma, covering the anterior third of the right vocal cord, overlapping its free border and involving the anterior commissure.

I could suggest no other treatment than the removal of the growth by evulsion with the forceps, but he declined to submit to the operation.

In Jan., 1882, one year later, he again consulted me. A remarkable change in his appearance had taken place. He was greatly emaciated, there was constant dyspnœa, with frequent attacks of glottic spasm, especially upon making the slightest physical exertion.

An examination with the mirror showed that the growth covered the entire right side, almost completely filling the box of the larynx, the only passage for air being a small space posteriorly.

I decided to attempt the removal by the forceps ; they were in-

* Read before the American Laryngological Association, Session 1882.

troduced twice a week for three weeks, but it was found quite impossible to reach the mass of the growth, which was attached below the cords. Dr. Heitzman, to whom a portion of the fragments removed were referred for examination, reported the growth to be a "simple papilloma."

On Feb. 21st he was admitted into the Metropolitan Throat Hospital. On the same day tracheotomy and thyrotomy were performed. The thyroid cartilage was found to be ossified, and it became necessary to resort to Hay's saw to divide it.

While using the curette for separating the growth thoroughly from its attachments, I was struck with the apparently thickened and indurated condition of the mucous membrane covering the anterior surface of the right arytenoid cartilage, and feared that the nucleus of a recurrent growth might exist in that locality.

The patient reacted promptly from the effects of the operation; on the sixth day the canula was removed, and on the seventeenth day, the external wound having quite closed, he was discharged from the hospital in excellent condition.

About three weeks later, I observed on the anterior surface of the right arytenoid a grayish spot, which I thought was a recurrence of the growth, but which proved to be the cartilage protruding through its coverings. On his next visit he brought me the ossified arytenoid, and stated that he was suddenly seized with a violent fit of coughing, during which he had expelled it.

Remarks: The above case is unique and presents several interesting features. Before the expulsion of the arytenoid there was complete immobility of the right side of the larynx, probably from ankylosis of the crico-arytenoid articulation. The place formerly filled by the cartilage now presents a flattened, sunken appearance—the right ventricular band seems to have fallen to the level of the left vocal cord, and supplies, in a great measure, the place of the lost right cord as shown by the returning voice.

True ossification has undoubtedly taken place in this case, and not mere calcification of portions of the cartilage, as a result of the perichondritis occurring in the course of ulcerative tubercular or syphilitic laryngitis. In this case there has been no destructive ulceration of the soft parts accompanying or preceding the process of ossification.

My curette probably produced a dislocation of the crico-arytenoid articulation, by which the separation and subsequent expulsion were hastened. I think we can infer that the remaining arytenoid is ossified, from the fact that the process involved the whole of the thyroid ; but at present its condition cannot be ascertained by mere laryngoscopic examination.

The movements of the left arytenoid appear to be perfect and unimpaired, which is difficult to account for when we consider that the attachments of the arytenoideus muscle are necessarily destroyed on the opposing side.

The specimen presents all the distinctive anatomical features of the cartilaginous arytenoid, and the drawing by my friend, Dr. Delavan, accurately represents the appearance of the larynx when last seen.

CLINICAL NOTES.

CASE OF SYPHILITIC LARYNGITIS—CHONDRITIS—GUMMATA OF THE NECK—PERFORATION AND FORMATION OF COM- PLETE LARYNGEAL FISTULA—TRACHEOTOMY—CURE.

By GEORGE M. LEFFERTS, M.D.

A *complete* laryngeal fistula, as the result of even severe and extensive disease, usually syphilitic or phthisical, of the laryngeal cartilages, is sufficiently rare to be of general interest.

My patient, a man, æt. 29, had contracted a chancre some six years previously, which was followed in due course of time by induration of the inguinal glands, secondary eruption, and slight sore-throat. No treatment, aside from a local one, was attempted. Four years later he suffered from severe nocturnal pains, and two large, deep, and intractable ulcers appeared low down upon the posterior pharyngeal wall. The attendant œdema and dysphagia were excessive, but there was no interference with either voice or respiration. These ulcers healed after a protracted local treatment by caustics. His disease now remained latent until five months before he came under my care, when it made its reappearance in the form of a diffuse gummatous infiltration, occurring over the right side of the neck to the inner side of the sterno-mastoid muscle, and reaching from the jaw to the cricoid cartilage. This was quickly followed by a second like tumor, but smaller, over the thyroid cartilage, in the median line, and reaching down over the cricoid. Both soon pointed and broke, disclosing a large amount of sloughy material, which was slowly extruded; the edges of both ulcerations, now extensive, meanwhile taking on a serpiginous character. Hoarseness, increasing to absolute aphonia, and embarrassment of respiration, occurred simultaneously; no laryngoscopic examination was made.

Progressively severe dyspnœa, continuance of the aphonia, and gradual diminution in the size of the external tumors, as suppuration and sloughing relieved them of their contents, are the main symptoms that now mark the progress of the case for the following four months. Two interesting occurrences then took place: the patient, while re-applying a poultice to the ulcerated and sloughing point over the lower part of the thyroid cartilage, suddenly noticed that air was escaping with a hissing sound from the wound; and a little later, after a violent and dangerous attack of sudden and increased dyspnœa, coughed up a large, hard, cartilaginous mass from the throat. Thus was the fistulous communication between the larynx and external parts, formed by the extension of a double ulcerative action, that externally originated in the degeneration of the gummatous mass, with extension of the ulcerative process inward; while the inflammation (perichondritis) and subsequent necrosis of, probably, the cricoid cartilage, with extrusion of portions of its substance, formed on the inner side an intra-laryngeal chasm, into which the former readily opened.

A short time afterward, I made my first examination—the symptoms having meanwhile improved, notably the respiration. The fistula has given him little trouble. Anteriorly over the neck, and covering the whole region of the larynx, the parts are indurated and distorted by cicatricial contraction; a long linear, but now shallow ulcer, with unhealthy base, reaches well downward and inward, from the angle of the jaw, on the right side, and marks the site of the first gummatous infiltration, with its subsequent degeneration. The results of the second, like process, are shown in the small but deep ulcer which is located over the thyroid cartilage, low down in the median line. Through this latter opening a probe passes downward and inward, through a wide fistulous tract, directly into the windpipe, entering it in the region of the cricoid cartilage. Air passes freely through this artificial channel, even during quiet respiration, with a slight hissing sound, and air-bubbles form about its external mouth. During efforts at phonation a volume of air rushes forth, and the lips of the wound are forced apart and widely separated. The use of the probe gives abundant evidence of the presence of necrosed cartilage at the inner end of the sinus. With the laryngeal mirror, all the characteristic appearances of extensive perichondritis of the cartilages (cricoid and thyroid), over the left half of the

larynx, are well demonstrated. The tumefaction of the tissues incident to the process, completely obliterates all anatomical outline ; the left vocal cord cannot be seen, but at its site the upper edge of, probably an extensive ulceration, reaching downward, is visible ; the lumen of the larynx is reduced more than one half by the swelling of its left wall ; its right, aside from being deeply hyperæmic, is normal. With the ox.-hydrogen light, a partial view into the upper part of the trachea is gained ; its anterior wall irregular, and covered by swollen tissues and granulation tumors, specially in the region of the cricoid cartilage.

Such was the condition of the case at the time that I assumed charge of it. Its interest for me lay not alone in its rarity, but likewise in a study of the means best adapted for its relief. As to the constitutional treatment of the patient's disease, of course no room for question existed, nor were the means doubtful. It is unnecessary for me to enter into any tedious details ; the combined treatment (iodide of potash with the biniodide of mercury), commenced in full doses, and the former pushed steadily to the point of toleration by the patient's stomach, did its work well, and was pursued without intermission during the subsequent operative steps. Upon these, that is, the plan adopted for the cure of the laryngeal fistula, centres, as I have said, some, at least, of the interest pertaining to the case. Closure of a fistula of such a size as here existed, was not to be expected by nature's efforts alone through any process of cicatricial contraction. I had to deal with an irregular, ugly, and unhealthy sinus, leading directly into the larynx through sloughy tissue, and bordered in part by necrosed cartilage,—a sinus constantly kept open by the forcible passage of air through it on each effort of the patient,—one incapable of closure by compression.

Under these circumstances, it seemed best to me to open directly into the air-passage by a free incision, having for its centre the mouth of the fistula—in other words, to perform a laryngo-tracheotomy. The advantages of such a step, although I had no precedent for it, either in what I had read or in the experience of either my colleagues or myself, and although objections which will suggest themselves to my readers, can be urged against it, seemed to me many, and may thus be summarized :

The operation was indicated in this special case, aside from any question of fistula, by the laryngeal stenosis and dyspnœa from which the patient was suffering, and especially by the danger

of sudden asphyxia, incident to any case of disease of the laryngeal cartilages when portions of necrosed tissue have been or are likely to become dislodged. Again, it was indicated here, as I believe it to be in any case of extensive syphilitic disease of the larynx, as a remedial agent, acting by simply putting the diseased larynx at rest, and consequently, under the most favorable circumstances, both for aiding the subsidence of the inflammatory process and for facilitating the subsequent act of repair.

Now, as regards the fistulous tract, by including it in the line of my proposed incision, I should open it up completely—a sound surgical principle,—be enabled to clear its walls thoroughly of sloughy tissue, remove all portions of necrosed cartilage that I might encounter ; in short, convert an unhealthy and probably persistent sinus into an open, easily treated wound, with edges extending into healthy tissue.

These reasons seeming to me good and sufficient, I made a free incision, extending from the lower border of the thyroid cartilage downward over the upper part of the trachea, and including the course of the fistulous tract. This incision passed only through the tissues overlying the cartilaginous walls of the air-tract, for at this latter point a serious defect existed : the anterior portions of the cricoid and of two or more of the upper tracheal rings were wanting, and my knife passed, after incising the soft parts, directly into the windpipe. The edges of the fistula, now distinctly seen throughout its course, were scraped clean with the sharp spoon, the rough cartilaginous edges at the bottom of the wound carefully rounded off by the cutting forceps, and a full-sized tracheotomy tube inserted.

The result of this procedure, without going into the subsequent steps of the reparative and curative process, which were speedy and unattended by marked incident, justified my expectations. At the time that the improvement in the laryngeal condition permitted the removal of the tube, the tracheotomy wound, for as such alone it was then to be regarded, was a healthy granulating tract, which quickly closed in the usual manner ; the subsequent cicatrix being, it is true, a depressed and somewhat unsightly one, owing to the defect of the underlying cartilaginous parts.

TWO CASES OF SUCCESSFUL INTERNAL ŒSOPHAGOTOMY.

By LOUIS ELSBERG, M.D.

On February 8, 1882, I reported two successful cases of internal

œsophagotomy to the New York State Medical Society, without particulars (See TRANSACTIONS, 1882, p. 318). The details of these cases are as follow :

CASE 1.—Mr. R. H., æt. twenty-seven years, came to me March 5, 1876, in a starved condition, having been unable, as he said, to swallow much of any thing for over a week. His history was that he was severely scalded in the mouth and throat when a small child. For several months he was not expected to live, gradually he became better, and could swallow liquids, and afterward solids, though always with difficulty, small morsels at a time, and with care only. About thirteen years ago, in consequence, it was supposed, of taking a bad cold, his dysphagia increased, but he found relief from treatment by dilatation with bougies, which had to be kept up at intervals for over two years. Then for ten years he could swallow comparatively well. About three months ago the old difficulty returned, whether again from a cold or not, he could not tell. Dysphagia has steadily increased, and every attempt at dilatation, a mode of treatment which seemed at first to do a little good again, and which has been practised in various ways by several doctors, has left the throat more and more sore and tight, until he has now become unable to get any thing, even a drop of water, down. He had come to me because he had heard that I used a new method of examining and treating the œsophagus without bougies, (auscultation,) as he would rather die outright than have another bougie put into his throat.

The man was emaciated, hollow-eyed, and anxious-looking. On opening his mouth, traces of inflammatory and ulcerative processes were seen on the faucial and pharyngeal mucous membrane, and some cicatrices, reminding one of past syphilitic ravages; but specific and every other constitutional taint was negatived. The laryngeal mirror revealed redness and thickening of the posterior wall of the larynx, and, lying against this, an irregularly nodulated angry-looking swollen gullet. I attempted to perform auscultation of the œsophagus, but though he took several times water in his mouth, I did not succeed. Only after a good deal of persuasion, and my positive promise that I would not hurt him, he allowed me to use a probe: with a metallic urethral sound, bent to suit my purpose, under sight by means of the laryngoscope, I carefully explored the opening of the œsophagus, and found that only the size a millimetre thick could be made to enter deeply, and this almost at the extreme left side of the gullet only. The contracture

commenced within half an inch of the beginning of the œsophagus. I made a soothing application to the part with the saturated solution of crystalized iodoform in Squibb's sulphuric ether (one part of the former to four of the latter), and prescribed exclusive rectal alimentation (which had not hitherto been tried).

On March 6th, 9 A. M., eighteen hours had elapsed since I had seen the patient. He had taken four nutritive injections, had retained them, and felt stronger and encouraged. I carefully repeated the application of iodoform, and again at 7 P. M. For several days I permitted no food to pass his throat, and continued the soothing iodoform applications.

Shortly before, while treating a case of œsophageal stricture referred to me by Prof. J. W. Gouley, that gentleman had suggested to me the performance of internal œsophagotomy, and shown me a design of an instrument with which he thought the operation might be done. Dr. Gouley was not aware that such an operation had ever before been thought of; his suggestion, therefore, was original with him, and was the outcome of his large experience with urethrotomy, and analogical reasoning. I told him that Maisonneuve had performed internal œsophagotomy upward of a dozen years previously, and that the operation had been successfully repeated at least half a dozen times in Europe by various surgeons. Dr. Gouley's patient, however, Mrs. E., an elderly lady from Virginia, I hoped to make comfortable without the cutting operation, to which the timid patient strongly objected, a hope in which, fortunately, by means of dilatation and local medicinal treatment, I was not disappointed. But the case of Mr. H. appeared to me a proper one for internal œsophagotomy. Accordingly, on March 9th, I introduced a somewhat flexible urethrotome—in this instance to be called an œsophagotome—into the opening behind the larynx, and carefully made a number of incisions, eight or nine in all, not very deep, into the tissue, and covering nearly an inch in length, from above downward, all toward the right side of the œsophagus, but at different points as to the antero-posterior direction. The cuts were painless, and there was at the time little or no hemorrhage. I wanted the patient to rest for that day, or at least for several hours; but, having told him before that after the cutting operation dilatation would probably be necessary and more effectual in relieving him, he begged to have this done immediately. I succeeded, without much trouble, in passing hard-rubber olives, measuring in the middle 4 and 5 mm.,

respectively, down to the stomach ; but this was followed by some bleeding and very much pain. The pain lasted fully twelve hours ; the bleeding stopped very soon. On the next morning, before seeing me, the patient swallowed some milk punch, the first thing he had really swallowed for a week. After introducing, without giving much pain, the olives of the preceding day, I passed successively olives measuring 6, 7, 8 and 9 mm. in largest thickness. The last caused considerable pain, and I desisted. The patient did not visit me until the third following day, when all pain had disappeared, and liquids could be swallowed with ease, but it was impossible to pass the olive of 9 mm. Smaller olives went through the strictured portion of the œsophagus without even giving pain. I then made four exceedingly careful incisions into the tissue in the same direction as before ; one incision was then made a little more boldly ; this was followed by considerable bleeding, and during the whole day by vomiting of clots. There was hardly any pain, however. On the next day the olive of 9 mm. could be easily pushed through ; and from that time to April 5th olives of gradually increasing size were daily passed. Then the patient went home cured ; I saw him several years later and have heard of him quite recently. The cure has remained complete.

Here I may say that many years ago I had three series of hard-rubber œsophageal olives made, attached respectively to steel-wire stems, $1\frac{2}{3}$, $2\frac{2}{3}$, and $3\frac{1}{3}$ mm. thick. Each stem is 50 cm. (nearly 20 inches) long, with a handle taking up about 10 cm. at one end, and a long (viz., 2 cm. in length) and comparatively deep screw thread cut upon the other. Immediately behind the screw, the stem is taperingly cut in what is intended as the antero-posterior direction, and it is similarly cut from the other side. This makes the stem for a distance of several centimetres more flexible ; it is here slightly bent downward. The olives of the first series are 3 cm. long, those of the second, 4, and those of the third, 5 ; all are thickest in the middle, and taper to a point at each end, the taper of the stem passing into that of the olive. The greatest thickness of the olives of the first series is respectively 4, 5, 6, 7, and 8 mm. that of those of the second series, 9, 10, 11, 12, and 13 mm., and that of those of the third series, 15, 17, 19, 21, and 23 mm. My set of thinnest œsophageal probes consists of nine pieces of gilt wire, each 45 cm. long, and respectively 1, $1\frac{1}{3}$, $1\frac{2}{3}$, 2, $2\frac{1}{3}$, $2\frac{2}{3}$, 3, $3\frac{1}{3}$, and $3\frac{2}{3}$ mm. thick, corresponding to the first eleven numbers of the

French guage, except Nos. 1 and 2; the thickest three are of annealed, the others of tempered, steel; they are all rounded at the end. They, as well as the olive-stems, have their lengths marked.

CASE 2.—Mrs. T. A. T., of St. John, New Brunswick, æt. thirty-one years, consulted me Feb. 2, 1877. The chief points in her history relating to the subject under consideration are, that her throat commenced to trouble her twelve years ago; that deglutition has been occasionally a little better and then again worse from that time to three years ago; since then it has been slowly but steadily getting worse, and since last September solids went down with increasing difficulty, so that she was forced to give up altogether taking meat. In December her voice also (and this for the first time seriously) became affected, and even three weeks ago she could only speak in a whisper, but since leaving her home the voice has become better, and now gives her little or no trouble. When nervous or hurried while swallowing, even liquids are apt to return, and sometimes all deglutition is impossible. No cause could be given for the commencement of her trouble, nor for the exacerbation recently.

I found pharyngo-laryngeal catarrh. Indeed the mucous membrane was thickened, relaxed, and congested from the nose to the trachea. On the first day I diagnosed a spasmodic stricture of the œsophagus, and by subsequent examinations discovered in addition an organic stricture, commencing about $7\frac{1}{2}$ cm. (3 inches) below the cricoid cartilage, and being 3 cm. (more than an inch) long, allowing the passage of an olive 6 mm. thick with difficulty, and a dilated pouch above this stricture. I treated and materially improved the mucous membrane catarrhally affected, and unsuccessfully employed systematic dilatation of the stricture for two weeks; I also gave her antispasmodics, tonics, and other general treatment called for by her condition. On Feb. 19 I performed internal œsophagotomy, cutting from below upward twice. The operation caused a little pain and bleeding, both of which subsided on sucking ice. Dilatation was recommenced on the next day, and though occasionally very painful and followed by temporary great reaction, bringing on several times spasmodic complete constriction of the œsophagus and once preventing swallowing, on account of persistent painfulness, for over twenty-four hours, was completely successful. Patient was discharged permanently cured on March 31.

CASE OF ŒDEMATOUS LARYNGITIS.

By HENRY SCHWEIG, M.D.,

NEW YORK.

On July 20th, after having for some weeks previously been attending a number of cases of diphtheria, I awoke with headache, loss of appetite, and general malaise. I took ten grains of sulphate of quinine, but passed the day without experiencing any relief; indeed, by the following day the symptoms had become more aggravated, with a slight increase of normal temperature. Quinia sulph. gr. xv were taken without producing any effect. July 22d, headache had become very violent, appetite failed entirely, and nausea and dizziness were marked. Fauces dusky red and tonsils enlarged. Pulse 120, temp. $103\frac{3}{4}^{\circ}$.

I took quinia sulph., gr. xxx, in divided doses in the course of the day, and also tr. ferr. chlor., 3 iij; kali chlor., 3 i; aquæ, q.s. ad $\frac{3}{4}$ vi. ℞. $\frac{3}{4}$ ss every three hours.

July 23d. No change in the condition; the treatment was continued.

On July 24th I consulted Prof. Elsberg, who thenceforth treated me. He found the tonsils very much enlarged, the pharynx inflamed and swollen, and the larynx slightly œdematous. There was inability to swallow, liquids finding their way back into drinking vessel by way of posterior nares.

Free cauterization of the tonsils with chromic acid produced great relief. The medication with quinine, iron, and potash was ordered to be continued. During the night the laryngeal œdema became more marked, swallowing impossible, and thirst so great that rectal alimentation was resorted to.

On July 25th all attempts at swallowing were vain, and caused great distress. Pulse and temperature remained high. The larynx was scarified, but not as completely as desirable, owing to want of proper instrument at hand. All the parts affected were painted with a saturated etherial solution of iodoform. The relief afforded was immediate; swallowing, though painful, was again possible.

July 26th. Thorough scarification of the epiglottic and arytenoid swollen tissues. The bleeding was abundant. The solution of iodoform was freely applied to the pharynx. The improvement immediately following the operation of scarifying was such, that both liquids and solids could be swallowed with facility, and with very little pain. Hereafter, the application of

iodoform was continued twice daily, and as the pulse and temperature had now fallen to normal, quinia was abandoned ; but the iron and potash mixture was continued until July 31st, when recovery was complete.

The points of interest about this case are :

1. The immediate ability to swallow after scarification.
2. The immediate local anæsthesia produced by the iodoform applications.
3. The absence of any history which would stand in causative relation to the œdema ; I can give a good family and personal record as to health, the only previous ailments having been croup at the age of three, and typhoid fever at twenty years.

CASE OF EXTREME ENLARGEMENT OF TONSILS CAUSING URGENT SYMPTOMS.

By T. WESLEY MILLS, M.D.,
MONTREAL, CANADA.

Some months since a child, aged three years, was presented with the following history and symptoms. She had for some time a certain degree of obstruction to natural respiration, which of late had rapidly been growing worse. The parents stated, that while eating, on several occasions of late, swallowing had set up fits of coughing and strangulation that had greatly alarmed them, and recurring with frequency, the child seemed afraid herself then to eat, and had not for some days taken the usual quantity of food. At night attacks of coughing and suffocating spasms were so frequent as to cause great alarm lest death should result.

The infant had a very anæmic, unhappy look, and breathing constantly with open mouth, presented, though a good-looking child, the usual listless aspect. Respiration is noisy, and suggests to the ear much obstruction. The general health has failed greatly. An examination of the throat revealed such hypertrophy of the tonsils as to cause them almost to meet in the middle line. Being of a pale aspect, little bleeding from operation was anticipated. They were both removed at one sitting by a rapid operation with a Mackenzie's tonsillotome of suitable size. The bleeding was trifling, and all the symptoms disappeared immediately, the child never once complaining of her throat afterward. More urgent and dangerous symptoms from *chronic* hypertrophy could scarcely be conceived.

NOTES OF FOUR UNUSUAL CASES SELECTED FROM THE
PRACTICE OF 1880-'81.

By S. H. CHAPMAN, A.M., M.D.,

NEW HAVEN, CONN.

CASE 1.—In July, 1880, Mrs. G., age 35, of Middletown, presented herself for treatment for a disagreeable cough and choking sensation, almost constant, and produced instantly by talking or swallowing.

The patient described it as a feeling of a bunch in the windpipe, which tickled and filled up the passage. General condition good; menstruation regular; had suffered from malaria to some extent; had not been seriously ill at any time; cough began three months before, with some hoarseness after church-singing; had been singing in public much up to time of attack; since then the malady had increased to its present distressing condition.

Examination disclosed the following: Pharynx congested; epiglottis in semi-prone position, over the crest of which could be seen a grayish-white swelling completely hiding the larynx. On raising the epiglottis, a grayish-white thimble-shaped soft swelling was found, adhering by broad base to posterior surface of the epiglottis, and occupying almost all of this surface from the crest to the base, and from side to side. It had the appearance, at first glance, of a huge dependent blister.

This swelling partially closed the larynx, owing to the prone position of the epiglottis, and, during the moments of inspiration and swallowing, came in contact with the interior laryngeal surface, and in this way caused not only the dyspnœa but also the harassing cough.

Beyond an intense congestion of the larynx, there seemed to be nothing abnormal below the swelling, except slightly thickened interarytenoidal folds.

The diagnosis made was mucous polyp.

No instruments in my possession were suitable for the removal of a growth of this peculiar nature, shape, and location.

After drawings, two instruments were made for me by Dr. Washburn: the one being a delicate steel probe, curved and bulb-pointed, whose concave curvature was fashioned like a saw, with teeth projecting upward and backward; the other being a pure silver probe, curved, and whose concave surface was grooved to admit of the application of nitrate of silver in solid form. I

hoped with the former to destroy the growth, and with the latter to cauterize the base of the growth in order to prevent its recurrence.

And this hope was happily realized. In one sitting it was an easy matter to destroy the polyp, by thoroughly scraping the posterior surface of the epiglottis; and the application of nitrate of silver thrice, served to remove any tendency to recurrence. The patient recovered her voice and health within a month after the operation.

In October, 1881, she presented herself again, on passage through town, for inspection, when the larynx and epiglottis were found to be in perfect condition.

CASE 2.—In September, 1880, a German, cigar-maker by trade, 37 years of age, was sent me for treatment of a so-called syphilitic inflammation of the larynx. He appeared well-nourished, and with no marks of specific disease about him. On inquiry I found his wife to be healthy, and that she possessed two children, ages 6 and 2, also healthy, and that she had had no miscarriages. It seemed therefore probable that the patient had been treated needlessly for specific disease.

Examination disclosed, first, an enlarged cervical gland in the right side; second, no special disease of the pharynx; third, a greatly inflamed larynx, with the following definite appearance, viz.: mucous membrane and vocal cords deep red in color; ventricles indurated, especially the right; rima glottis contracted to at least one half its capacity; induration deep and widespread, as shown by the crippled muscular action and the almost entire immovability of the larynx; no ulceration.

There seemed to be a close connection between the cervical gland and the larynx, for movement of the former communicated itself to the latter.

Other symptoms were slight difficulty in swallowing, some dyspnoea, great hoarseness.

The diagnosis was doubtful at first. Whether it were a greatly aggravated chronic laryngitis, due to the man's peculiar trade, a perichondritis, or an inflammation of a more serious nature, as sarcoma, remained in doubt for some weeks. During this period the treatment consisted of counterirritation to the external surface of larynx and gland, in the shape of saturated tincture of iodine and oleate of mercury; the use of inhalations of benzoin and iodine; the constitutional treatment of iron and oil; and oc-

asionally the local application to the laryngeal surface of a strong solution of nitrate of silver. During this time also the patient was obliged to live in a good, pure, untainted atmosphere.

Notwithstanding the above treatment the condition of the larynx became steadily worse: induration and inflammation increased, and extended both above and below to the pharynx and to the lower cervical glands, appearing also on the left side; the gland originally implicated grew larger and larger until it had attained the size of a very large orange, and until the skin over it was tense and white; the difficulty in swallowing increased, until fluids only, and they in small quantities at a time, could be taken; the dyspnœa increased, and finally suffocative attacks set in, which hastened laryngotomy. This operation was performed in January, 1881, while the patient remained sitting and without ether, a Fuller tube of large size being used.

The only peculiarity about the operation was that the crico-thyroid membrane was covered by an unusually thick and dense layer of tissue; the result, no doubt, of the generally diseased and infiltrated condition of all the adjacent organs.

One week after the operation the larynx was entirely closed by the increased swelling of its tissues; the originally enlarged gland became so big as to necessitate the attempt to relieve the pressure on the larynx and skin by drawing off its contents. Nothing was obtained by this operation, however, except a little thin fluid.

A few days after this, and about one month from the date of laryngotomy, the patient found it impossible to swallow any food whatever, and died some days later from inanition.

Unfortunately no autopsy was allowed. But from the character of the fluid taken from the gland, as well as from the gradual development of the disease, it was not difficult to make the diagnosis of sarcoma.

Microscopic examination of the fluid showed, in addition to the usual blood- and pus-cells and debris, well-formed spindle-shaped cells, with large round and oval cells.

From a careful study of the case, it seemed to the writer that an ordinary laryngeal inflammation had developed into a sarcomatous growth of the tissues surrounding the larynx, from the irritation of the dust of his peculiar trade, and from a constitutional predilection to this form of disease; that the growth had been very slow—he had been under treatment for specific disease for the greater part of a year,—and only became rapid and virulent

when the neighboring glands became implicated ; that then all the tissues of the throat became infiltrated with the sarcoma to such a degree as to destroy life by blocking up the passages to both the lungs and the stomach.

The family remain healthy to the present time.

CASE 3.—In June, 1881, a gentleman, aged 57, was sent to me, complaining that no solid food could be taken into the mouth, and no fluid food, except with caution, without producing a prolonged and exhausting attack of coughing, sometimes lasting several hours.

Patient looked prematurely old ; was emaciated, and moved with feeble force ; his voice was strong, however, and evidently not altered from its natural tone ; the lungs were sound ; pulse and temperature normal ; had suffered terribly from chills and fever ; said he was exhausted because he could not get enough food into his stomach to keep himself in good health. The affection had grown steadily upon him for several years ; at first it was only occasionally that a bit of dry bread would make him cough ; then beef would do the same thing, although finely cut up or properly masticated ; but he dated his decided trouble from a strangling fit, which occurred about a year before, on attempting to swallow a rather large piece of unchewed beef-steak ; the piece came up, but since that time no solid food had been taken, even in the smallest quantities, without the repetition of the attack.

Coincident with that first severe attack, was a very severe chill. Examination of the mouth and throat showed : first, an attenuated condition of all the tissues ; the tongue looked thinner and flabbier than it ought ; the mucous membrane was loose and red, and its vessels congested and varicosed ; the epiglottis and larynx looked much as they ought,—in fact, beyond that attenuation which seemed but a part of the general condition, and a rather acute hyperæsthesia of the mucous membranes of the mouth and throat generally, there seemed to be nothing abnormal.

My treatment consisted of local treatment, nitrate of silver, anodynes, electricity ; the constitutional treatment of phosphorus, and cod-oil, and, finally, thorough change to an antimalarial district. By these means the patient was improved in general health, weight, and by loss of the excessive sensitiveness of the mucous membrane ; but solid food could be taken with no more ease at the end of August than when I first saw him.

In despair, I reëxamined the larynx very carefully, but could

discover nothing wrong in the functions of any of the parts ; then I prepared my patient solid food, in the shape of a bit of cold roast beef. He was very loath to try it, but on my earnest request, he took into his mouth a small piece, and, after masticating it well, went through the act of swallowing. Instantly a violent fit of coughing came on, during which I managed to catch a glimpse of the larynx, when I found the bit of chewed beef lying in the lingual sinus, on withdrawing which, with a pair of forceps, the coughing ceased. This experiment was afterward tried with bread, with a pill, sugar-coated ; with fluids, and in all cases, all of the solid was found in the lingual sinus, and a portion of the fluid. Then I began to discover that the sinus seemed deeper than usual, as if the tissue between the larynx and tongue had shrunk away ; and the base of the tongue seemed thinner, less muscular, and more easily flattened down.

Upon watching the process of swallowing on myself, I came to the conclusion that the base of the tongue ordinarily fills a very important duty toward the larynx—rising up against the roof of the mouth, arching itself backward, and so shutting up the lingual sinus, and forcing the epiglottis down over the larynx, in this manner making the food move on clear of the epiglottis.

I have been able to verify this since, in two cases of acute tubercular inflammation of the epiglottis and one of syphilitic epiglottic ulceration, where, by pressing the tongue back against the epiglottis, the pain became exactly the same as that during the entire process of swallowing ; and where the same pain was produced by pressing the epiglottis back with a blunt instrument. My case, therefore, seemed to have become simplified into one of lingual muscular attenuation or partial atrophy.

Despairing of remedying this disease I taught the patient to pull out his tongue and sweep the lingual sinus clear of any residue of food which might be there, taking care, just previous to using a brush, to take and hold a breath ; so that if he should, by any chance, sweep any thing into the larynx, he would be able to expel it.

I have lost sight of the patient since October ; but during that month he expressed himself as feeling much happier than formerly, since he had no longer the fear of suffocation, and knew that he could stop his coughing in a moment ; he also stated that he ate a little more freely, but that most of his food consisted of clear fluids.

CASE 4.—Early in September there rushed into my office, accompanied by her physician, a middle-aged lady, who related in a hoarse, unnatural voice, and in the midst of constant coughing, that she had swallowed a needle; that she was eating a lunch of beef-stew only a few minutes before, when she felt something pierce her throat; that it gave her great pain.

Examination showed a needle lying directly across the rima glottidis, its ends embedded in the ventricular bands; fortunately it had fallen almost broadside, and the processes of breathing and of talking had driven both ends firmly into the tissues.

This I quickly discovered, for when I grasped it firmly with curved forceps it would not yield. Cutting forceps of the proper curve and size I had not at hand, and as haste was necessary on account not only of the great pain and terror of the patient, but also of the œdema which was fast filling up the ventricles, I determined to tear it out by force.

In this attempt the needle broke in two, and I was able then to extract each portion separately with comparative ease.

That portion which contained the eye was embedded only in the soft tissues, but the other portion it was difficult to extract on account of the depth and firmness of insertion of its point, requiring a lateral upward and swaying motion, very like that by which a tooth is extracted.

The needle was a No. 6 English made.

All disagreeable symptoms had disappeared by the following day.

TRANSACTIONS

OF THE

FOURTH ANNUAL MEETING

OF THE

AMERICAN LARYNGOLOGICAL ASSOCIATION,

HELD IN THE HALL OF THE MEDICAL LIBRARY ASSOCIATION, BOSTON,
JUNE 12, 13, AND 14, 1882.

Third day, morning session.

*Discussion on Dr. Wagner's Paper.**

Dr. HOOPER inquired the reasons for performing laryngotomy?

Dr. LEFFERTS replied that it had been found to be impossible to remove the growth with the ordinary laryngeal forceps, as part of it was located below the vocal cords.

Dr. SEILER recalled a case of a young girl, seventeen years of age, in which ossification likewise existed. Upon examination she presented the appearance of having had syphilitic laryngitis, and upon inquiry it was found that she suffered with sore throat at six years of age, and was for several months under treatment before it was cured. The laryngoscope showed that the right cord was immovable, and that the left largely took the place of the other in phonation; the right arytenoid cartilage was entirely gone. The voice, however, was pretty good.

In another case, seen at Dr. Cohen's clinic, both arytenoid cartilages were expelled in a fit of coughing, and they proved to be to a great extent ossified. This also was a case of old syphilitic laryngitis. He had never, to the best of his recollection, seen a case where ossification of the arytenoid cartilages occurred, in

* See page 50.

which there was not a history of specific poisoning, as in the cases referred to.

The discussion "On the singing voice: its physiology, pathology, and treatment," was opened, by appointment, by S. W. LANGMAID, M.D., of Boston.

Dr. Langmaid said that he had only been very recently notified that he would be expected to open the discussion, and when the subject was announced to him he felt very much inclined to say, "Here 's richness,"—physiology, pathology, and treatment ;—any member of this question would be enough to occupy the whole of one series of the meetings, or, at least, an entire session. Feeling the impossibility of doing justice to the subject as stated in the order of exercises, he proposed simply to bring before the Congress for consideration, one or two points from his own practice, occurring in every-day work, merely in the way of suggestion, and in the hope that at some future meeting of the Association the subject may be treated more thoroughly and worthily ; and in order that we may get more light than we now have with regard to the effect of certain changes in the physiological condition of the organs concerned, upon the singing voice. Of course, the physiology of phonation is that of the larynx, which has only one other function, that of respiration.

The first paper read at this meeting by Prof. Elsberg, on "Paralysis of the laryngeal muscles," has a most important bearing upon the pathology of the singing voice. The voice depends upon the action of the muscles and condition of the muscular structures of the larynx. Paralysis of the laryngeal muscles means impairment of the singing voice ; so that in reality most of the physiology and pathology and not a little of the treatment of the singing voice have already been brought out before in Dr. Elsberg's essay and in the discussion which followed it. To go more fully into it, therefore, would very largely be a rehearsal of what has been said.

With regard to the parts concerned in the act of singing, they are the superior air-passages, the larynx, trachea, and lungs. The lungs, however, must be left out of sight in our consideration, except in so far, perhaps, as the subject of proper breathing is concerned in the producing of tone. The matter of tone, however, is not one that can be discussed now. Dr. Robinson's paper had something to do with the question of the influence of the morbid conditions of the mucous membrane of the trachea and larynx

upon its functions, for without a healthy normal condition of the mucous membrane and trachea we cannot expect to get a normal voice—a normal production of a normal quality of voice. With regard to the effect of the paralysis of certain laryngeal muscles, the following case will serve as an illustration: A female singer, with a strong, powerful voice, accustomed to use it in public, and professing never to have found any difficulty in its use, came to me, stating that her voice was impaired, the scale was shortened, and the quality of tone was altered. Laryngoscopic examination revealed a very marked catarrhal condition of the larynx and upper part of trachea, but the cords were not injected except upon efforts at phonation, when they were seen to flush a little. The glands were a little more prominent than usual, and there was a coat of mucus over the surface of the mucous membrane which was redder in the vestibule of the larynx than normal. Upon rhinoscopic examination, the same condition of the mucous membrane was found existing throughout the upper air-passages. It was an acute affection; the posterior nares were perfectly open, and there were no signs of hypertrophy of the turbinated bones; the nostrils were also well open. Looking again at the larynx he found a state of things which he had very frequently met with, accompanied or not accompanied by the catarrhal condition: a position of the vocal cords he had very often seen in singers complaining of altered conditions of the voice; that is, one vocal cord unable to come up to the middle line, always standing a little off in phonation. The cord was relaxed; the arytenoids approached perfectly well; there appeared to be no defect in the cartilaginous glottis, but the ligamentous glottis acted imperfectly. There was an elliptical-shaped opening during phonation, such as described by Dr. Elsberg. Generally it has been the left cord which is at fault. Greatly increased effort resulted in a fairly loud but somewhat hoarse tone. The scale could be sung as far as D" (Re above the normal La). This note, with Mi and Fa above it, could only be sung with the greatest effort, and Sol could not be sounded. Here is what the speaker would consider a typical case of disease, and it is the type of many others. Here was a pathological fault and a physiological failure induced by it, and he was very glad of the opportunity of asking Dr. Elsberg and others to say something with regard to loss of motor power in the vocal apparatus from slight catarrhal inflammation of the larynx. He had regarded the condition as a slight paresis, and had thought that this condition

might possibly exist in thousands of people, who would never have recognized it unless they happened to be singers. What is the explanation of this, and what is the proof that it is the result of the catarrhal inflammation? It is this: remove the catarrhal affection and you immediately remove the want of power in the cord. This has followed so often that he was quite sure of it. The treatment, therefore, was first that for the catarrh; he advised complete rest for the voice for a day or two, using only a whispered voice, forbidding talking, and not allowing the patient to sing a note, only rarely trying to find out if the voice is there. Then by local applications the catarrhal condition is very easily removed. At present the patient is singing again. When the catarrhal inflammation disappeared, it was very agreeable to notice how soon the vocal cord regained its normal functions. Without local treatment the result would be a loss of *technique* in that voice. Generally speaking, it may be stated, that with such treatment, if attempts at singing are not begun too soon, the patient will recover the use of the voice in good condition; but if the use of the voice is continued too soon, the result may be permanently altered tone or shortened compass, or both. This may happen to the best singers, the result of a slight catarrhal condition associated with paresis of the vocal apparatus. The treatment has been indicated, the prognosis has been considered, and in conclusion, it may be added, that this condition includes a large number of cases.

With regard to one other point—the influence of the nasal structures and their abnormalities upon the singing voice. At one of the Association meetings, that in Philadelphia, Dr. Elsberg having been asked whether he had ever known tonsillotomy to impair the voice, the speaker was glad to hear him reply that he never had, for he knew that in the minds of some in the community a prejudice exists against removal of the tonsils for fear of injuring the voice. With regard to the influence of nasal disease upon the voice our knowledge is recent, and this is a subject in which this Society has really been in advance, to establish the nature and treatment of the voice itself; but except indirectly, in discussing disorders of the nasal spaces, nothing has been said of the immediate relation of the affections of these passages upon the voice.

Dr. Knight reported a case a short time ago in which he had removed the right inferior turbinated bone. The result was grati-

ying ; the lost notes were regained, and the compass of the voice was increased.

An interesting discussion is : " What is the effect of a stenosis of one nostril by an hypertrophied turbinated bone, or of the deviated nasal septum, or any other condition which produces stenosis, upon the singing voice ? "

In such cases the problem is not merely to remove this obstruction. The singer says : " I do not want this done unless its existence interferes with my voice," and this is a subject which should be considered. Dr. Jarvis had a case which interested him very much. He saw the man, and from his own comparatively small experience with this condition of the head-obstruction in a rather narrow nostril, he advised against the removal of the hypertrophied bones, which Dr. Jarvis had stated, in writing, should be removed. Of course he stated to the gentleman that Dr. Jarvis had had much more experience than he had, but he was not sure that this was a case of alteration of the voice ; it certainly was a case of persistent catarrh. He told the patient that if he had had him for a long-enough time to observe the condition, he might advise the removal of the hypertrophied structures ; he then advised him to see Dr. Jarvis again, and if he still advised the operation he should have it done. The patient did so, and the operation has been performed. The speaker, knowing the imperfection of this voice, was very curious to know the effect of the operation, and would like to see the patient again.

A few weeks before, a patient had come to him, a singer, with one of the most powerful and beautiful voices he had ever listened to. He had a catarrhal trouble, with a deflected septum, and a very narrow nostril. He had also an elongated uvula. The first question was with regard to the septum, and he had concluded to treat the catarrh first and the septum afterward. Although he had this obstruction, the speaker heard him sing in public ; he sang with ease, and his voice filled the hall. He called afterward to thank the speaker for what he had done, and said that he had never felt so well able to sing as at that time, and yet the partial stenosis caused by the deflected septum remained.

In conclusion, Dr. Langmaid introduced for examination a case of excessive development of adenoid tissue in the posterior nasal spaces and pharynx, in a boy otherwise in good health. There was no history, and the origin of the trouble was not known. The voice was slightly changed.

Discussion.

Dr. JARVIS said that as his name had been mentioned in the introductory remarks, and as it was a subject to which he had given some attention, he would refer to some observations made at previous meetings, and some since. The relationship between disorders of the nasal cavities and the singing voice, is a very simple one, and seemed so self-evident that there could be but little disagreement upon the subject. In the first place, there is the condition of the vocal cords, of which he spoke last year : a chronic congestion of the true vocal bands, which must affect the singing voice. He had yet to see a case of chronic nasal catarrh in which the secretion passing down over the larynx did not cause this trouble ; the nasal secretions in the laryngeal box act like a foreign body, thus blunting the razor-like sharpness of the free border of the bands, and causing a blending of tones. In such a condition, recognizing the nasal mucus as the source of the trouble, and recognizing the cause of its production in the nostril, it would seem that there is only one course to pursue—remove the tissues which are known to form the secretions, and relieve the hyperæmia, not so much by astringent injections to the larynx, as by removing the original cause, and relieving it from the irritating secretions from above. He had pursued this course himself with much gratification, and other Fellows had adopted it with success. The fact of the stenosis is also of marked effect upon the voice, and singers confess that when the nostrils are thus closed, they are obliged to exert more effort ; he had yet to see a case in which this effort was not appreciated by the patient.

The case at present under his care, referred to by the preceding speaker, is a good illustration of the fact just stated. His idea is removing this hypertrophied condition of the mucous membrane, especially when caused by hypertrophy of the turbinated bone (which can always be detected) by the wire loop and the transfixion needle ; and he did not know of a better demonstration of the fact that it would be impossible to catch the tissue if it were not hypertrophied to some extent. He removed in this case two anterior hypertrophies, and one posterior hypertrophy. The portion removed was about half an inch in length ; its size surprised him. There was no trouble in this case except the nasal disorder and the effect of it upon the larynx. He saw the origin of the catarrh ; it was merely a deviated septum pressing upon the hypertrophied tissue opposite. Regarding this as the cause of the catarrh and the

hyperæmia of the larynx, he removed the exciting cause. There was also a slight paretic condition of the vocal bands, which had followed a previous attack of catarrh before being seen by the speaker. He had now been under treatment for two months, and the disorder was wonderfully changed; he can now reach much higher notes than before. He had taken charge of the case with some reluctance, but the results were so satisfactory that he looked forward with pleasure to sending the patient again to Dr. Langmaid, for further observation of the action of the laryngeal muscles. In conclusion, he called attention to the paper read by Dr. Bosworth, with regard to the removal of posterior hypertrophies and adenomata, which will often remedy the hyperæmia of the larynx and the alteration of the voice, which had been pointed out as resulting from the nasal disease.

Dr. CARL SEILER said that there were several points in connection with the subject to which he would like to call attention. In the first place, the effect of the catarrhal condition upon the vocal cords, which relation has already been explained clearly by Dr. Jarvis, when he stated that as a result of the catarrhal condition the vocal cords become spongy, and lose their normal acuteness, and it becomes impossible, therefore, to produce with ease the high notes. In 1879, he showed microscopic specimens of the vocal cords themselves, which demonstrated that the free border of the vocal band is concave, having a small sulcus running along its upper border. There is also a band of fibrous tissue (Seiler's cartilages), and it is by the stretching of this narrow band that the higher notes are formed, as pointed out by Luschka. Now, suppose a thickening from any cause occurs in this membrane, the effect of the sharp edge cannot be produced; a rounded edge will not vibrate with as much ease as the sharp edge. Secondly, there is the fact, also noticed by Luschka, which the speaker had also frequently observed, that the higher notes in such cases cannot be produced without great effort.

With reference to the effect of diseases of the nasal cavity upon voice, he referred to a paper he had read at the last meeting, which he was sorry to say appeared to have been fruitless, for he had pointed out that the effect was not so much by direct as by an indirect influence; the nasal cavity being separated from the laryngeal box, though only separated by a thin partition, to prevent a nasal tone being added to the voice. But as soon as we interfered with the physical conditions of this chamber, we have

a change in the voice, no matter how small, an alteration is produced. It is granted that this alteration may have existed for some time, and considered peculiar to the individual and not observed by him ; but remove this obstruction and you will improve the voice, although you may take away some of its individuality.

Another point is the production of the hyperæmia and catarrhal condition of the larynx by the nasal obstruction ; which causes mouth-breathing. The irritation of the cold and dust-laden air in the larynx, especially at night, due to mouth-breathing, causes local disorder, which is added to the cause already mentioned, the dropping down of mucus from the nasal passages. Therefore, the speaker concluded that the effect of nasal disease upon the voice is a great one, and he agreed with Dr. Jarvis, that obstruction with stenosis should be removed. He had found satisfactory results following the correction of the deviated septum in such cases.

Dr. ROE concurred in the remarks made by those before him. The influence exerted upon the voice is, however, a relative one, depending upon the size of the nasal cavities, and the character of the obstruction. If the nasal passages are very large, the resonance is very much greater, and a slight obstruction would be less conspicuous. The same amount of obstruction in small nasal passages would be much more readily perceived. Then, again, with regard to its position. If the obstruction is in the anterior portion of the nasal passages, and not too large, the resonance will be sufficient to overcome the difficulty ; the tone of the voice is fuller and deeper in the large passages, but in a small head with narrow passages the tone is higher, and in this case a slight change is more readily perceived, and if the obstruction should be in the posterior portion it diminishes the singing voice very greatly. One point not touched upon in discussing the management of the singing voice is this : Many singers will give their voice almost complete rest during the summer, and the muscles of the larynx become therefore weakened from want of use, like other muscles. In the fall they come back to their work and expect to sing as much as they did in the spring, at once over-taxing their muscles instead of using their voice gradually ; these violent vocal exercises bring on a congested condition of the larynx, which causes more or less laryngeal catarrh, and damages their voice, and they complain that they cannot sing as well as when they left off in the spring. This is a point that should be borne in mind by laryngologists in their

advice to singers ; they should either use the voice during the summer, or else resume its exercise gradually.

Dr. RUMBOLD concurred in all that had been said with regard to the influence of nasal inflammation upon the larynx ; he said that there was another subject that deserves consideration—the influence of the soft palate upon the voice, as shown by the physiological action of the soft palate itself. In 1870 a man came under his charge, whose nostril was large enough to admit the little finger, which gave him an opportunity of introducing a small mirror, and to get a reflection from the larynx. His observations extended over five weeks altogether, and included studies of speaking, singing, breathing, swallowing, etc., as far as the action of the muscles of the larynx and soft palate are concerned. He found that in uttering certain sounds the palate rested upon the base of the tongue, and in certain other sounds the soft palate and uvula were pressed against the posterior wall of the pharynx ; in one case the sound issued through the mouth and nose at the same time, in the other it issued from the mouth or the nose, the uvula resting either upon the base of the tongue, or raised and pressed back against the azygos prominence and the vault of the pharynx, the effect of this being to prevent the soft palate from vibrating when the sound was passing. When the sound passed through the nostrils and mouth, the azygos process rested upon the vault of the pharynx, with small semilunar openings at each side. When there is nasal disease interfering with the mobility of the muscles of the soft palate, it would be necessary, in order to improve the voice, to remove the obstruction and restore the soft palate to its natural condition.

Dr. SEILER inquired which sounds passed through the nose, and which through the mouth, according to observation upon the case referred to.

Dr. RUMBOLD said that when the patient said "*pig*," none of the sound issued from the mouth ; other sounds, like the vowels, pass entirely through the mouth.

Dr. INGALS said that there could be no doubt that the nasal cavity modifies the sound of the voice, and he had no doubt but that the gentleman introducing the discussion was of the same opinion. But there is one point upon which he would like some information ; it is with regard to the advice to be given to singers. There is no question that some patients may have nasal passages obstructed, and still have a good voice ; the effects upon the voice

are immaterial. In the first case, if the voice is good, he could see no reason for removing the obstruction, except where it is required by other symptoms that are unpleasant. There is an old rule, which is as good for laryngologists as other persons, "let well enough alone." If he should have a patient with such an obstruction, who could sing as well as he desired to, he would not feel obliged to tell him that it would be necessary to have this obstruction removed right off. It is better to advise patients as long as they are well enough to let it alone. There is always a tendency to jump at conclusions, and to forget that all patients do not present the same conditions; there may be a hundred cases requiring the same treatment, while the very next case would need one entirely different. We must not lay down invariable rules for treating our patients any more than for ourselves.

Dr. JARVIS inquired whether patients with neglected catarrhal conditions may not run the risk of ruining their voice.

Dr. INGALS.—Very possibly so, and he would not advise such neglect; he simply asked for other reasons for operating than a simple deformity or deflection of the septum.

Dr. DE BLOIS said that during last winter he had had under his care at the dispensary one of those rare occurrences, a male soprano, who had sung on the stage, but was obliged to give it up from the fact that the voice had become cracked. Upon examining him, the posterior nares were found obstructed by mucus, and there was some adenoid growth, though not a great deal. He remained under treatment for six weeks, during which time the parts were touched with iodine; there was great diminution of the swelling, and the mucus did not accumulate in nearly such large quantities. After leaving the dispensary the patient returned to the stage, clearly showing that, in his opinion, the removal of the obstructions made his voice again useful, and enabled him to gain his livelihood.

Dr. DALY was very much pleased by hearing testimony which confirmed opinions expressed by him at the last meeting of the Medical Society of the State of Pennsylvania, when he presented a communication upon the effect of tonsillotomy upon the singing voice. Dr. Langmaid believes that the removal of the tonsils never injures the singing voice, and he had arrived at the same conclusion. He personally assures patients that if there is any change at all it will be for the better.

With regard to the catarrhal condition affecting the vocal bands

and the larynx, it seems as if there is a tendency among laryngologists to give more and more attention to the nasal cavities and upper air-passages, which he was glad to see, as he had predicted it himself years ago. He predicted that just as there are laryngologists for the throat, we would have rhinoscopists to study the diseases of the upper air-passages, diseases which are often supposed to be in the larynx itself, a fact he had demonstrated to his own satisfaction many times. Ladies have told him, "I am complaining of my voice and you are treating my nose," but he gets good results which justify the treatment. In this class of cases he seeks out the evidence of central disease, and if any exists he treats that first, and next pays attention to the peripheral disorder; in many cases he makes no laryngeal applications whatever, or perhaps nothing more than a little spray. The tendency to extend the field of observation is a very healthy one, and he believed that American laryngologists are entitled to the credit of being the first to appreciate and apply this fact.

Dr. DELAVAN agreed with Drs. Daly and Langmaid. He thought that apparently the conflict of opinion might be explained in this way: any pathological condition in the pharynx or the nasal passages may have an effect upon the voice, but occurring in the pharynx is far more apt to do so than in the nasal chambers. He had seen cases with nasal obstruction in which the singing voice was fair, but he had never seen a case with enlargement of the pharyngeal tonsil in which the voice was good.

There is one question with regard to the treatment of chronic hyperæmia of the larynx, in which he had found that properly conducted gymnastic exercises accomplish more than local applications. If due to over-use, or strain from improper use, of the voice, they require rest at first, but afterward should be conducted through a course of vocal gymnastics. The province of the laryngologist is in such cases a secondary one: he should send the patient to a music teacher to be properly instructed in the correct use of the voice and muscles. The explanation may be this: the hyperæmia is caused by the wrong use of the voice, and if it is long continued the patient may already have lost his singing voice. If instructed in the use of the voice so that he becomes accustomed to use the voice properly, he now may avoid the cause of the hyperæmia which before existed; he is therefore not only following a course tending to relieve the temporary condition, but one that will be of permanent good. There is another important point:

it is the action of breathing, and the influence of proper use of the apparatus of breathing upon the production of tone. There are a great many defects of voice, and some are accompanied by injection of the larynx, due to defective breathing; nor need we go far for an illustration. In such cases properly conducted gymnastic training is very valuable; even regarding the singing lessons as mere gymnastic efforts, they are useful. Phthisis is very rare in singers.

With regard to tonsillotomy, the importance of this is very great; for, after all, it is the condition of the pharynx which determines the quality of the tone. Any thing which interferes with the pharyngeal condition will interfere with the quality of the tone, therefore an elongated uvula, aside from its irritating action, will act directly in impairing the quality of the tone produced.

Dr. MORGAN said that bearing upon the subject of the physiology and hygiene of the singing voice, is a question which for some time had demanded his attention: it is the direct relation existing between many of the throat affections of adults, and the abuse of the voice during childhood.

There exists what in his opinion is a pernicious method of teaching young children, practised in our common-school system, referring to the "singing recitations" by children between the ages of eight and fourteen years. When we reflect that these little ones, with delicate, unformed vocal organs, are from day to day and month to month subjected to these singing exercises, regardless of the throat affections from which they suffer, or to which they are so liable, we can readily imagine the consequence. A child with damp clothing or wet feet, or, what is still worse, an acute tonsillitis, pharyngitis, or laryngitis, is denied that important factor for the prevention as well as the cure of throat affections—rest.

This singing method is open to the further objection of being in choral, hence the slight huskiness attendant upon mild inflammatory affections is overlooked, and great injury may follow. Moreover, greater attention is naturally given to the correctness of the recital than to the character of the vocal exercise. He had known of children with enormous tonsils being absolutely forced to sing, and he had seen two promising voices ruined in this way. This whole matter has not received the attention it merits, and save in Philadelphia, as he had been informed by an eminent teacher of vocal music, the subject has not been at all discussed.

At all events, his urgent desire was to ascertain the views of the Fellows upon this point, and to call attention to what he regards as a bad system.

Dr. LANGMAID, in closing the discussion, said that he scarcely knew where to begin to agree and where to disagree. He agreed with Dr. Daly, with Dr. Jarvis as modified by Dr. Ingals, who had possibly better expressed his views than he could have done himself. He agreed with Dr. Morgan also. The illustration upon the blackboard was intended to show the position where failure was observed in the case referred to. There has possibly been more bosh written on the "registers" than upon any other subject. The beginning of the failure was D, the absolute loss of voice was at F sharp. If you will call the attention of any cultivated singer to the subject he will give you the exact tone where the voice fails. He asked, Why is it that the failures to produce tone occur at the very point about which so much dispute has been? but this he could not go into at present.

He was disappointed that Dr. Elsberg had not discussed the subject of the paresis, which was pointed out in the case where the left vocal cord did not come up to the other one. In Dr. Morgan's case of double voice, there was also laryngeal paralysis. Dr. Morgan admitted in conversation that the catarrh being removed, the voice began to reappear, and the symptom afterward entirely disappeared under the use of strychnia.

Dr. ELSBERG said, in response to Dr. Langmaid's repeated request: First, as to tonsillotomy: he believed that tonsils can be cut out in such a way that the voice can be injured, and he had not merely once, but a number of times, seen this result. This is, however, never the result of the operation when properly performed.

With regard to Dr. Daly's remark, that the Americans are *the first to appreciate and act upon* the fact of the connection between nasal affections and laryngeal disorder, he would say that, although very gratifying if true, it was not borne out by the facts. About a dozen years ago he had seen a case in Berlin, in which the singing voice was restored by treatment directed exclusively to the nasal passages by Waldenburg, who certainly laid as much stress upon the importance of nasal disorders in throat affections, as we could to-day. He mentioned this because he did not wish credit that does not properly belong to us. While attending the First International Medical Congress, held in Milan in 1880, the speaker had to report upon a case presented by Dr. Schmidhuisen, of Aix-la-Cha-

pelle, in which a public singer, who had lost her singing voice for more than ten years, had had it entirely restored by the removal of a concretion in the pharyngo-nasal space ; and other European laryngologists had related a number of interesting cases, from which it appears that they knew of this relation and had given it due consideration. It is certainly true, however, that during the last few years attention has been called to the subject more often in America than in Europe.

Now, with regard to the interior muscle, or thyro-arytenoid, and the transverse or arytenoid muscle, lying very superficially they may easily become affected by a catarrhal condition involving the mucous membrane covering them, and paresis of one or the other be noticed ; even more frequently than one alone, both of these muscles become paretic in catarrhal conditions. The whole task of adduction of the vocal bands thus being thrown upon the lateral crico-arytenoid muscles, these too, after awhile, may become affected, either first with spasm and then with more or less paralysis or, more frequently, at once with paresis from overwork. Such pareses of the transverse, interior and lateral muscles are sometimes bilateral, sometimes unilateral ; and it has often struck him that the muscles on the right side must generally be stronger and better able to resist these influences, for, like Dr. Langmaid, he has observed the want of action to occur more frequently on the left side. In persons with a tendency to neurotic affections and in singers, who make great demands upon their laryngeal muscles, paretic conditions are of course more easily brought about in this way than in other persons.

Dr. DALY begged to say that we have to depend upon literature for information of the progress of medical science, and he need only refer to the literature of the past two years to show that there was greater impetus given to rhinology, or diseases of the nose, during that period than for eight or ten years previously, and he had noticed especial activity in this department by American laryngologists. Although Dr. Elsberg's observation is more extended, begging his pardon, he still retained the opinion expressed.

Dr. ELSBERG, continuing, said, in reference to the physiology of the voice, that the variations in pitch are produced by different persons in somewhat different ways. Of course, these variations are produced in the case of every person by changes in the tension, length, breadth, and shape of the vocal bands, and variations of expiratory force, but different persons employ some of these

factors to a different extent than others, combining them differently and still perfectly physiologically. He had shown some years ago that the divergence of opinion in regard to the production of notes of different pitch, in regard to registers, etc., by authorities both medical and musical, is to a very great extent due to this fact.

PROCEEDINGS

OF THE

FIFTY-FIRST REGULAR MEETING

OF THE

NEW YORK LARYNGOLOGICAL SOCIETY,

HELD AT THE RESIDENCE OF DR. R. P. LINCOLN, NO. 20 WEST 31ST STREET, FRIDAY EVENING, OCTOBER 13, 1882.

The President, Dr. LOUIS ELSBERG, occupied the chair; Dr. WM. F. DUNCAN, Secretary.

Present.—Drs. Asch, Bosworth, Delavan, Duncan, Elsberg, French, Holden, Ives, Jarvis, Johnson, Lefferts, McBurney, Rice, Robinson, and A. H. Smith. Many members of the profession of New York and surrounding cities were present as guests; also Drs. Morell Mackenzie of London, and J. Solis Cohen and Seiler of Philadelphia.

The minutes of the last regular meeting were read and after slight alteration approved.

The first paper of the evening was on "Tubercle in the Larynx," presented by Dr. J. SOLIS COHEN of Philadelphia. He prefaced his remarks by exhibiting many beautiful microscopical specimens, camera lucida drawings, and diagrams relating to the subject.

He said that the vexed question about the existence of tubercle in the larynx was now set at rest, chiefly by the researches of Heinze and Eppinger. At last pathologists admit finding primary tubercle in the larynx; although the evidence is clinical only.

He does not know that any record exists in which tubercle is found in the larynx of the dead subject without finding it also in the lungs and other organs. While he admits that secondary laryngeal tubercle is common, he states that primary tubercle in the larynx is very rare, he having observed only three pre-

sumptive cases in his entire experience. He gives a brief record of these cases as follows :

CASE 1.—Occurred in the driver of an ice wagon, in whom the laryngeal tubercle preceded the lung deposit, or any evidence of it, by eighteen weeks.

CASE 2.—A sailor, who gave the history of catching cold. The pneumonic symptoms followed the laryngeal in six weeks. In both cases the origin was in a cold.

CASE 3.—A miller, in whom the pneumonic symptoms followed the appearance of the tubercle in the larynx in fourteen weeks.

There was no evidence of hereditary taint in these cases.

He divides laryngeal phthisis into acute and chronic forms. The acute form is preceded for some time by a markedly congested and reddened appearance of the mucous membrane of the larynx. The symptoms are those of a severe acute laryngitis which, in from two to six weeks, runs into a chronic laryngitis, indistinguishable, for some time, from a simple chronic laryngitis. Later, multiple erosions appear, which resemble the superficial ulcerations of a severe catarrhal laryngitis. The distinguishing point is that they are multiple. In this form the disease, or tuberculous deposit, is usually limited to the supra-glottic parts, and generally to the epiglottis, and ary-epiglottic folds. The chronic form is preceded a number of weeks by an intense pallor of the mucous membrane, which is its earliest recognizable symptom. This pallor extends to the palate and mouth. Later, congestion appears. The chronic form has its first manifestations usually in the posterior wall of the larynx, over the arytenoids and in the inter-arytenoid wall.

According to his belief, secondary tuberculosis occurs in both the acute and chronic form.

In the acute form the process of caseation is very rapid. The laryngoscope has never revealed to him any tubercles in the beds or edges of the ulcers, nor in the tissue around them, in the earliest stage. The glands, thought to be the seat of the deposit of tubercle, undergo two processes of infiltration, when involved : 1st, a great increase of round cells in the tissue *between* the acini ; and 2d, an infiltration *within* the acini.

The rapidity of the degeneration in the acute form is very great, and in a few weeks destroys the soft tissues down to the cartilages, in which inflammation and necrosis in time appear. The ulceration of the epiglottis resembles closely syphilitic ulcerations, which, however, are rarely seen on its lingual side.

Discussion on the paper was opened by Dr. MORELL MACKENZIE, who expressed himself as indebted to Dr. Cohen for his masterly exhibition of the close relation existing between clinical observations and pathology. He had differentiated laryngeal phthisis into acute, chronic, and sub-acute varieties.

He hoped the correctness of the views given in the paper would be established by future observations.

Dr. BOSWORTH said that one of the first distinguishing points of the disease was the club-shaped arytenoids. The first stage he thought *non-tuberculous*, and, therefore, at that time *curable*. Later on, the disease, if not arrested, became one of the most painful and distressing.

Dr. SEILER continued the discussion by stating that he had made microscopical sections of the larynx in the case of the driver of the ice-wagon, and demonstrated the existence of tubercle.

Like Dr. Bosworth, he believed, in the first stage where there was pyriform swelling with only a proliferation of cells, the case was curable, although he could not give a favorable prognosis.

Dr. HEITZMANN gave as his opinion that tubercle was very rarely observed in the larynx. He was opposed to the view that tubercle was a deposit, and believed it was simply a product of inflammation. He also took issue with Koch, who claimed that tuberculosis was parasitic in origin, doubting the correctness of his experiments. He stated that while rabbits were very susceptible to the formation of tubercle, there were certain animals, the cat, for instance, that could not be tubercularized.

He further stated that tubercle was essentially a new formation, which contained no blood-vessels.

The discussion was closed by Dr. COHEN, who, in reply to the statement made that the pyriform swelling disappeared under treatment, said that in his practice it had not occurred.

He, however, occasionally had seen shallow non-tubercular ulcers heal, but that here no pyriform swelling existed. He also stated, in reply to Dr. Heitzmann, that he used the expression, "deposit of tubercle," because it was in general use. He was pleased to note that attention had been called to the fact that some animals were easily tubercularized. Certain animals and men could not be tubercularized, because the lymph-spaces were so large that they were not easily choked up by tubercles.

(The Report of these Proceedings will be continued in the next Number.)

REVIEWS AND BOOK NOTICES.

Étude sur la paralysie isolée du muscle ary-aryténoïdien. Par le Dr. LOUIS LECOINTRE. Bordeaux, 1882.

This interesting pamphlet of forty-nine pages is an excellent study of the isolated paralysis of the transverse (*i. e.*, the arytenoid) muscle of the larynx. We can speak of it with praise though we do not agree with all its statements. After a brief introduction, the author devotes a few pages to the history of the affection. He justly concludes that the subject belongs entirely to modern science ; but it is rather surprising that he is not aware of the fact that Türck observed and published a case as long ago as in 1864, a case which is reproduced and illustrated in the classical *KLINIK* of 1866, p. 451. In the next section, entitled "Anatomy and Physiology," there is a footnote to explain the proper use of the word glottis, of which we cannot approve : it is true, the word is used by many persons to designate a space, but strictly speaking it should not be confounded with the *rima glottidis*, but be confined to the lateral projections in the interior of the larynx between which the chink extends ; calling the "vocal glottis" the "intercartilaginous" is, we suppose, merely a typographical error, but it is puzzling to the inexperienced reader. The arterial blood supply of the arytenoid muscle is said to be derived from a branch of the superior laryngeal artery,—which, again, is either a misprint or a mistake. The author does not seem to be quite clear as to whence the arytenoid muscle receives its nervous influence ; he says it does so probably from both laryngeal nerves, but we believe it is quite conclusively established that the arytenoid and communicating twigs of the superior laryngeal nerve are sensory only.

The causes of paralysis of the transverse muscle are fully and intelligently discussed, prominence being, of course, given to hys-

teria and catarrhal laryngitis. Dr. Lecointre believes himself authorized to say that *isolated and complete* paralysis of the arytenoid muscle is more rare than that of other muscles of the larynx, and particularly than that of the posterior crico-arytenoids. He admits, however, that want of action of the muscle in question can sometimes be observed in cases of intense acute catarrhal laryngitis, but asserts that such cases are not cases of veritable isolated and complete paralysis, but of simple paresis of the arytenoid muscle. This seems somewhat like surrendering and begging the question of the frequency. We believe that the affection under consideration is more frequent even in chronic than in acute catarrhal inflammation. The truth is that *isolated* paralysis, complete or incomplete, or paresis, of any one of the laryngeal muscles is very rare, and difficult to recognize unless the subject has been well studied; combined paralysis of two or more muscles occurs much more frequently and is comparatively easy to diagnose. Symptomatically and laryngoscopically the isolated paralysis of the posterior crico-arytenoid muscle is the most obvious. Among over twenty-five thousand throat patients that the writer has seen, he can report only sixty-five cases of *isolated* paralysis of the intrinsic laryngeal muscles, and these were not all *complete*; the arytenoid muscle alone was paralyzed twenty times, the thyro-cricoid sixteen times (these were not pure cases, for the superior muscles, *i. e.*, the thyro- and ary-epiglottic, were in some cases, if not in most, co-involved), the posterior crico-arytenoid fourteen times, the thyro-arytenoid thirteen times, and the lateral crico-arytenoid twice. Dr. Lecointre himself has observed three cases of isolated paralysis of the arytenoid muscle, of which he reports one as being complete and two incomplete. Now, if the affection is as comparatively frequent as the above individual statistic shows, then these three cases involve a total of nearly four thousand throat patients; but if it be more rare than isolated paralysis of other laryngeal muscles, the total number of patients which our author has examined must be much larger, and it is certainly a matter of great regret that he has not stated the total number of patients and the number of cases of *isolated* paralysis of each of the other muscles of the larynx which he has personally observed.

The next two sections take up the symptoms and the differential diagnosis. Both these subjects are very well discussed. But there are two points, concerning which we must express our dis-

sent. First, the author insists that "if the paralysis is complete the patient will be aphonic, if it is incomplete the timbre of the voice can vary according to the degree of the affection." This is not true as a rule without exceptions, for occasionally the voice is not entirely extinct, although the paralysis is complete. Secondly, according to the author "we may recognize the simultaneous paralysis of the arytenoid and of the lateral crico-arytenoid by this, that the free edge of the vocal cord instead of being straightened will be concave, and that the two cords will always leave a space between them and *in their entire length*, circumscribing an elongated ellipse, of which the posterior portion would be truncated at the level of the interarytenoid mucous membrane." This is entirely untrue, for from the combined paralysis of these two muscles, a straight-lined triangular opening between the vocal bands results on attempted phonation.

After a few remarks on the course, duration, termination, and prognosis of the affection, its treatment, both general and local, is detailed, proper stress being laid on direct electrization. The recital of ten cases, three of which were observed by the author, one each by Drs. Poyet, Ducan, Ziemssen, Duranty, and Morell Mackenzie, and two by Dr. Semon, conclude the work.

A Treatise on the Science and Practice of Medicine ; or, The Pathology and Therapeutics of Internal Diseases. By ALONZO B. PALMER, M.D., LL.D., Professor of Pathology and Practice of Medicine, and of Clinical Medicine, in the University of Michigan, etc., etc. New York : G. P. Putnam's Sons, 1882, 2 vols., 8vo, pp. 903, 866.

In addition to the large space allotted in this work to diphtheria, influenza, whooping-cough, consumption, and other such subjects of special interest to our readers, thirty-four pages are devoted to the diseases of the mouth, tonsils, pharynx, and œsophagus ; thirty-two to those of the nasal passages, larynx, and trachea ; and forty-three to those of the bronchial tubes. We have examined these sections very carefully, and take pleasure in recording that the author has succeeded in furnishing physicians an admirable, concise, and reliable guide even in those departments of practice in which he disclaims all special knowledge.

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By GEORGE M. LEFFERTS, M.D.

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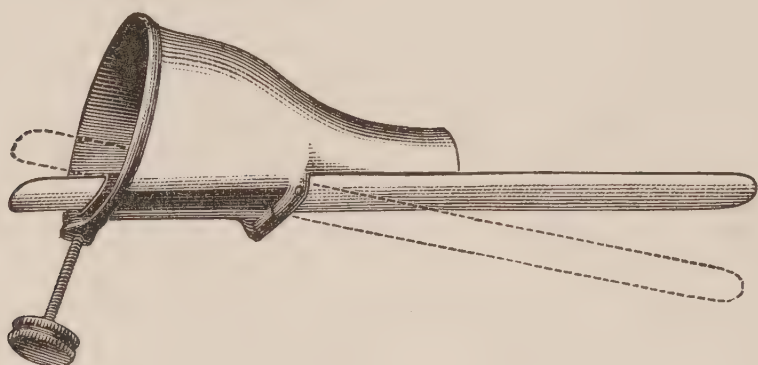
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NEW INSTRUMENTS.

An Improved Speculum for Use in the Application of Galvano-Cautery to the Nasal Mucous Membrane. By THOMAS R. FRENCH, M.D., Brooklyn.



The accompanying illustration represents a nasal speculum, which I have devised to render the application of galvano-cautery to the nasal mucous membrane safer and more efficient than can be done with instruments now in use.

The objects of all specula for this purpose are : 1. To dilate the nostrils. 2. To protect all structures except those which it is intended to burn.

Patients are apt to withdraw the head either just before or during the application of the cautery, and though the greatest care is taken in the introduction and withdrawal of the electrode, unless the nostrils are properly protected there is always danger of burns being given which may result in permanent disfigurement. Again, unless the wall of the nasal passage opposite to that which it is intended to cauterize is covered, unnecessary burns may be produced.

The two specula which are most largely used in cautery operations within the nasal cavities are Shurley's nasal speculum, and one

made of rubber, shaped somewhat like the ear speculum. While Shurley's speculum is efficient in protecting the septum when it is desired to cauterize tissue overlying the turbinated bones, it does not protect much of the integument and membrane at the anterior nasal opening, and but little of the tissue of the outer side of the passage. Asbestos fibre, which is fire-proof, can be laid over the uncovered parts, but this is troublesome, takes time, and is not always efficient. The funnel-shaped speculum protects the anterior nasal opening, but does not prevent the possibility of injuring the septum while applying cautery to the opposite side.

The instrument here figured is designed to protect all the parts except those to be burned in applying cautery to hypertrophied mucous membrane over the turbinated bones. It consists of an ivory slide, like that in Shurley's speculum, though longer, which moves freely in a clamp; the clamp being fastened in the side of a funnel-shaped shield of silver by a hinge. At the upper and back part of the shield is a bridge of metal, through which passes a screw with a milled head. When the screw is turned, the upper end of the slide is pressed into the bell part of the shield, thus separating the long end of the slide from the small extremity of the shield.

The instrument, with the slide partly withdrawn and in contact with the small end of shield, is inserted into the nasal passage and pushed inward as far as it will go. The slide is then thrust in so that the end lies at a little greater depth than it is intended to burn. By a few turns of the screw the long end of the slide and the small end of the shield are separated, thus dilating the nostril as far as each individual case requires. Though I have always found the slide sufficiently strong to allow more pressure than is necessary in dilating the nostril, I deem it proper to say that some care should be taken to avoid forced distension of the nostril, for the slide, being made of ivory, will not, of course, stand as much pressure as if made of metal.

It will be seen from the above that all the parts are protected, with the exception of an insignificant portion of tissue exposed by the separation of the shield from the slide, and which it would be necessary to go quite out of the way to burn.

The instrument is made by Fred. Haslam, Brooklyn.

MISCELLANY.

BOLLETTINO DELLE MALATTIE DELL' ORECCHIO, DELLA
GOLA, E DEL NASO.

In the *Bulletin of the Diseases of the Ear, Throat, and Nose*, founded and directed by our friend, Dr. Vittorio Grazzi, of Florence, we welcome the second journal devoted to our specialty published in the "Land of Song." During our attendance at the First International Congress of Laryngology, in Milan, we learned to appreciate the enthusiastic zeal, the painstaking study, and the real ability which our own collaborators, Drs. Labus, Massei, and Zawerthal, also Drs. Caselli, Cervesato, Cozzolino, Frua, Grazzi, Masucci, Morra, Novaro, Ruggi, Urbino, and others whose names have for the moment escaped us, brought to the cultivation of our specialty in Italy. Prof. Massei's *Italian Archives of Laryngology* are in a very flourishing condition, to judge by the third fasciculus of the second volume, which has just reached us at the same time as the first number of the new journal. The *Bollettino*, which is a bi-monthly of sixteen pages, addresses itself to the general practitioner as well as to the specialist, and proposes to report briefly the progress made in aural and laryngeal medicine and surgery. We wish it abundant success.

ESTABLISHMENT OF A CHAIR OF "LARINGOJATRIA" IN
THE UNIVERSITY OF ROME.

As a further evidence of the growth of our specialty in Italy, we take great pleasure in recording that the Minister for Public Instruction has established a chair of Laryngology in the Royal University of Rome. In filling this newly created professorship, the unanimous choice of the Superior Council has fallen upon our collaborator, Dr. Zawerthal. We congratulate our esteemed friend, but also the University, on this appointment.

Those of our readers who have occasion to refer frequently to a bulky dictionary or other large-sized volume, will, on trial, doubtless thank us for recommending them to use Noyes' Dictionary Holder. It is just high enough to be convenient for a person sitting, takes up but little room, is portable and exceedingly comfortable in handling. The address of Mr. L. W. Noyes is No. 99 West Monroe Street, Chicago.

ARCHIVES OF LARYNGOLOGY.

ON EXTIRPATION OF THE LARYNX.

BY PROF. BUROW,

KÖNIGSBERG, PRUSSIA.

[Communicated in German, and translated by Henry Schweig, M.D.,
New York.]

SINCE the year 1866, when Watson, of Edinburgh, practised the first extirpation of the entire larynx on the living subject, the number of like operations for a time grew slowly, so that Schüller, in 1880,¹ could cite only nineteen cases. Since this time, however, the number of reported cases of complete extirpation of the larynx has assumed such proportions that a closer study of the subject seems indicated, with a view to drawing deductions therefrom.

I have succeeded in collecting reports of fifty-nine cases, and so supplement by twenty-seven, the report presented by Foulis, of Glasgow, to the Sub-section on Laryngology of the International Congress, held at London in August, 1881, this number including one operated on by myself and not previously published.

My warmest thanks are given to various colleagues for furnishing me, in detail, many data, and communicating by letter cases which had at the time not yet been published. The 59 cases concern 48 males and only 11 females. As to age, there were below 30, 5 cases; between 30 and 40, 6; between 40 and 50, 15; between 50 and 60, 20; between 60 and 70, 8; between 70 and 80, 4.

Of these, 24 died as a direct result of the operation; 15, in from 2 to 15 months following the operation, owing to recurrence of the disease; 2, of suffocation some months

¹ *Deutsche Chirurgie, Lieferung* 37, 1880, pp. 197-200.

after the operation ; and 18 resulted in recovery. This gives a result of 40 % of deaths directly traceable to operative interference, and if we add thereto the other unfavorable cases, the rate of mortality rises to 70%. Even these figures would, in all probability, be more unfavorable had they been compiled a year later, so as to include the subsequent history of some of the cases reported shortly after operation, for it can be reasoned from analogy with other cases that a certain proportion of these will soon take an unfavorable course.

If we tabulate the results according to age, we have :

Years.	Deaths as result of operation.	Recurrence.	Recovery.
20 to 30		1	4
30 to 40	2	3	1
40 to 50	7	4	5
50 to 60	8	6	7
60 to 70	5		2
70 to 80	2	2	
Total	24	16	19

From the cases of recovery—between forty and fifty years—should be deducted one, on which I operated, and in which death, by suffocation, took place suddenly four months after the operation ; although the autopsy did not reveal relapse of the original disease.

The table shows (2d row) 16 cases, of which two, though living at the time of their publication, suffered from recurrence of disease which promised to end fatally soon.

Comparison of results points to increase of danger in advanced age : of eleven cases over 60 years, seven ending fatally, two dying of a return of their ailment, and only two making a good recovery.

On closer inspection of the cases cured, we find :

(1) The celebrated case, Bottini (Turin), of a man of twenty-four years, who, six years after the operation, continued well, filling the position of letter-carrier in the country. (2) A twenty-eight-year-old patient (male) of Foulis (Glasgow) who died of phthisis, one and three-quarter years after the operation. (3) Woman, aged fifty-two years, whom Wegner (Stettin), exhibited,

1878, at the Congress of German Surgeons, and seven months after operation, no relapse. (4) Woman, aged nineteen years, Caselli (Reggio-Emilia), well, and able to work twenty months after the operation. (5) Man, aged fifty; operation by Foulis, 1881; five weeks after operation strong and in good health. (6) Male patient, aged forty-seven (Czerny), six weeks after operation in good health. (7) Woman of fifty-five, Winiwarter (Liège), in good health eleven months after operation. (8) Male, aged thirty-six, Thiersch (Leipzig), attending to his business affairs a number of months after operation. (9) Male, fifty-two years, Thiersch, after thirteen months, free from any signs of recurrence, and actively engaged as woodman, following his laborious vocation even through the winter. (10) Male, fifty-four years, Bergmann (Würzburg), enabled to speak quite well some months after operation with aid of Bruns' larynx. (11) Male, sixty-seven years, Hahn (Berlin), after two years free from any symptoms of relapse. (12) Boy of ten years (Ruggi), cured in twenty-eight days. (13) Male, fifty years, Maydl (Vienna), removal of larynx and epiglottis (but not of cricoid cartilage), and, in addition, a carcinomatous gland the size of a pigeon's egg, recovery after three months; no relapse. (14) Male, aged forty-eight, Gussenbauer (Prague), nineteen months after operation no recurrence; he is acting-director (commander) in a riding academy. (15) Male, aged sixty-two, Gussenbauer, remains well after fourteen months. (16) Male, aged fifty-nine, Kocher (Berne), remains well after sixteen months. (17) Male, aged forty-three, Kocher (Berne), up to time of discharge no relapse; a stricture of the œsophagus, due to excision of eight cm. of its structure, makes use of bougies imperative. (18) Female, aged forty-four, Völker (Braunschweig), recovery perfect; died five months after operation, of suffocation, the canula having been taken out by herself for purposes of cleansing.

The above narration of the cases cured places them in a less favorable light than would appear from the table.

The three cases of Bottini, Foulis, and Caselli which gave such good results were in young subjects, aged respectively 24, 28, and 19 years, and were cases in which not carcinoma but sarcoma had indicated the operative interference. There are two other cases of sarcoma, one by Czerny (No. 21), forty-six-year-old male who died of relapse fifteen months after the

operation; and another by Lange (No. 24), where the seventy-four-year-old patient died seven months after the operation. There remain as cases of carcinoma which survived the operation for some time, those of the following operations: Hahn, 2 years; Thiersch, 13 months; Winiwarter, 11 months; Wegner, 7 months; Gussenbauer, 19 and 14 months. Add to these my case, in which death occurred suddenly four months after the operation, the autopsy showing no return of the disease; and Völker's case,¹ whose patient died of suffocation five months after the operation, after removal of canula for cleansing purposes. Post-mortem examination in this case revealed no other cause of death, but showed a beginning return of the disease on the anterior wall of the œsophagus and the epiglottis. The other cases were reported at too early a date following the operation to permit of any judgment being passed.

Of fifty-seven patients on whom total extirpation was practised, deducting the five cases of sarcoma, only six cases of carcinoma gave a period of seven months and over at the time of their publication. Case 48, though alive seven months after the operation, died two months later of a return of the disease. Prof. Reyer (Petersburg), who has performed the operation of total extirpation six times, twice (Nos. 48 and 49) on the same day (Oct. 10, 1881), and has therefore the greatest experience in this domain of surgery, writes me:

“Of all my cases, not one gave a favorable result; as those who survived the direct dangers of the operation and escaped pneumonia ultimately succumbed to recurrent disease.” In this connection it is proper to mention that Kocher's case (No. 52) remained after sixteen months entirely free from symptoms of disease.

If we apply Volkmann's statement in regard to mammary cancer, that only a non-return in three years is indicative of a cure, Bottini's case alone would stand as cured. But we need not go so far. There is no doubt that a re-arrangement of the table after the expiration of a few years will give a

¹ Over carcinoma laryngis. Akademisch Prüfschrift door. J. F. Coenen Amsterdam, 1882.

greater percentage of cases cured ; but, at all events, the results of extirpation of the entire larynx for carcinoma have up to date been little encouraging.

In addition to sarcoma and carcinoma of the larynx, three other causes have been held as indicating the operative interference.

1. Tertiary syphilitic destruction of the larynx. Watson,¹ who found the chief indication for the operation in the fact that liquid food and saliva found their way into the trachea by the side of the canula. Patient died three weeks after the operation.

2. Rubio, whose patient was a man aged forty-one, who had necrosis of the cartilages, and died five days after the operation.

3. Ruggi,² who performed thyrotomy on a ten-year-old boy, for polypoid degeneration of the larynx, and finding the hemorrhage continuing although the galvano-cautery was employed, decided to extirpate the entire larynx. After twenty-eight days, during which time the temperature remained almost normal, deglutition was free and appearance of neck normal.

I think that my readers will agree with me in the opinion that these three indications for the operation should be discarded as unjustifiable, and particularly the case of Ruggi cannot be recommended for imitation.

Comparing the above with the views advanced at the discussion to which the papers by Foulis and Schech gave rise at the International Congress, of London, we can say that there was a decided expression of opposition to the operation by the majority of laryngologists present, and if we take into consideration the very small number of favorable results obtained even with the greatly increased experience, this opposition cannot be wondered at. All the more because we have another method of treatment which holds out good chances to the patient, and I refer here to the expective treatment and, in cases of beginning

¹ Transactions of the International Medical Congress, London, 1881, vol. iii, p. 252.

² *Centralblatt für Chirurgie*, No. 45, 1882.

dyspnœa, tracheotomy. There are many cases on record, and I have personally observed many treated in this manner, enjoying immunity from trouble for a considerable period before finally succumbing to the progressive carcinomatous changes. I do not think that I am going too far in saying that, in cases of slowly ulcerating carcinoma, patients survive the operation of tracheotomy one to one and a half years, are quite comfortable during this period, and often are enabled (with the tracheotomy tube *in situ*) to fill the usual duties of business routine. Tracheotomy, performed at the proper time, is not attended by any danger; and as Fauvel¹ states, the rest to the part thus secured, retards for a time the progress of the disease. An important point which I emphasized at the discussion in London, is, that should the physician not decide on extirpation *in toto*, but only seek to remedy the dyspnœa by tracheotomy, the patient can be kept in ignorance of the incurability of his case, while where total extirpation is decided on, the consent of the patient to the operation will be gained only by acquainting him with the terrible nature of his malady. That the condition of a patient whose larynx has been extirpated is a far more pitiable one than where tracheotomy has been performed, will hardly be questioned by any one who has had the opportunity to contrast both cases. Solis Cohen² very properly directed attention to the important difference between recovery from the disease and a mere survival after the operation.

Thyrotomy for the removal of malignant tumors from the larynx is not to be recommended, nor partial excision, for here more than in any other part of the body the full and complete removal of all affected tissues must be accomplished or they should not be touched. But I will not enter into a discussion of this question, as it would be beyond the scope of this article.

As a résumé, I would lay down the following points:

1. Total extirpation of the larynx in cases of carcinoma, has, as regards danger to life, as well as in the matter of absolute cure, given hitherto little encouraging results; 40%

¹ "Maladies du Larynx," Fauvel, Paris, 1876, p. 774.

² Transactions of the International Congress, vol. iii, p. 262.

of the cases eventuating in death after the operation, these figures swelling to 70 % of cases of death, due to relapse of the disease.

2. Notwithstanding this, operative essays in this direction should be continued with the following restrictions:

a. The patient's age should not exceed sixty years; he should be comparatively strong and free from serious complications.

b. The disease must be confined to the larynx; the surrounding glands, muscles, etc., remaining unaffected.

3. In all other cases, where dyspnœa is present tracheotomy should be promptly performed.

4. The prognosis in cases of sarcoma is much more favorable. Benign tumors encroaching on the calibre of the larynx to a marked extent might also furnish an indication for the operation.

5. Syphilitic processes, necrosis of the cartilages, and papilloma do not call for total extirpation of the larynx.

I will close by relating my direct experience in the matter.

M. K., æt. 45 years, teacher, native of Bobruisk, Russia, states that for five years past he has had trouble with his throat, to which was added in the summer of 1881 dyspnœa. The most varied treatment notwithstanding, dyspnœa increased so that on September 22, 1881, at his home tracheotomy was performed. He then came here, and in November, 1881, Prof. Schönborn performed thyrotomy and excised the diseased tissues.

The patient made a good recovery, and after the lapse of a few weeks the canula was removed. On his return home health continued good until a few months later, when his complaint again showed itself, so that on the 3d day of July, 1882, he came to me with such alarming dyspnœa that tracheotomy was at once resorted to.

During the following few days, thorough examination of the patient was made with the result as follows: Patient is much emaciated, and has a sickly, sallow color. The anterior portion of the throat, in the region of the pomum Adami, is occupied by a hard tumor of the size of a filbert, which is attached to and continuous with the anterior commisure of the thyroid cartilage. It is covered with reddened skin closely adherent, and its centre shows the

cicatrix of the previous operation. Excepting this the contour of the larynx is normal, unless we mention a slight puffiness and softening over the centre of the left thyroid cartilage. No structures outside the larynx are involved, there being notable freedom from glandular infiltration.

The laryngoscope shows the major part of the interior of the larynx occupied by a diffuse tumor covered with a normal mucous membrane, and encroaching on the chink of the glottis from left to right, reducing it to a minimum. The region of the arytenoids as well as the ventricular folds are so thickened and broadened that the vocal bands cannot be seen; epiglottis normal. When the canula is closed, air finds its way through the larynx with great difficulty. Deglutition is impaired, especially for solid food. No reaction followed the tracheotomy, the highest temperature being on the second day $38^{\circ}.3$; but the external tumor increased with such rapidity that it had doubled in size after two weeks. I therefore proposed to the patient total extirpation of the larynx, giving him the facts regarding chances of recovery, etc. After two days' deliberation he consented.

On July 25, 1882, I operated, patient being in the semi-prone position, his shoulder supported by a round pillow, and a Trendelenburg tampon-canula in place, through which chloroform was carefully given. The tampon was inflated only after complete narcosis had set in, as a too early inflation might have irritated the tracheal mucous membrane and so interfered with the prompt establishment of anæsthesia.

Two oval incisions were made to surround the tumor over the pomum Adami, meeting above the canula; then a transverse incision, 6 ctm. long, across the hyo-thyroid membrane, and the flaps thus formed loosened from the thyroid cartilage by dissection (bleeding vessels being tied as the operation progressed) by at first the knife, afterward dull instruments; then the hyo-thyroid membrane was divided, and the epiglottis at its base.

The pharyngeal mucous membrane and muscles were then divided at the posterior margin of the thyroid cartilage, the larynx being drawn forward with a sharp hook. Finally, the trachea was divided transversely below the cricoid cartilage. After hemorrhage had ceased the parts were cleansed with iced water and solution of aluminium acetate.

The tampon canula remained in place during the operation, and proved effectual. The large vessels were not brought into view

during the operation. That portion of the pharyngeal mucous membrane detached from the posterior part of the cricoid cartilage adapted itself to the opening in the trachea, but was purposely not united by sutures, to provide against the formation of pockets for the retention of secretions. The trachea which had sunk low down behind the sternum, was drawn up and attached to the soft parts by two silkworm-gut sutures.

An œsophageal tube of red rubber (Jacques' patent) was introduced, and the flaps formed by the oval incisions at the commencement of the operation secured by superficial sutures, leaving them, however, the width of a thumb apart. No other suture was passed. The wound was packed with cotton wet with the solution of aluminium acetate. Patient was only slightly affected by the operation, and walked without assistance from the operating-room to his chamber. Progress of the case was favorable, the highest temperature being on the second and third evenings and not exceeding 38.6° , the only disturbing feature being the constant flow of saliva into the wound. For four weeks the patient was fed through the œsophageal tube which remained *in situ* the first few days, and later on was introduced as required, its constant presence having caused discomfort. After eight days' use of the sound, deglutition became possible, certainly with difficulty, and only when a cotton tampon was firmly pressed against the wound. Later on, however, it became easier, and the patient developed a strong appetite, his weight increasing with the ability to swallow, it having decreased during tube feeding, although every detail had been carefully observed. Arrival of the artificial larynx was delayed, and during this time I made the following experiments in phonation :

I introduced through the now very small wound a curved hard-rubber tube, about 8 mm. in thickness and 5 cm. in length, to the region of the epiglottis. When this was connected by means of elastic tubing with the tracheal canula patient could speak with some degree of distinctness. Without any phonatory apparatus, therefore, sounds were formed by the soft palate, lips, tongue, etc. An artificial larynx after Von Bruns', Jr., made by Beuerle of Tübingen was introduced three months after the operation, and speech was very satisfactory. The rubber phonatory plate did not invariably respond, but when it did, the sound of the voice left nothing to be wished for. True, the breathing space was lessened by the phonatory apparatus, but speech was tolerably good without this when the external opening was closed ; an observation which

other observers can verify. Patient was exhibited at the Medical Society at Königsberg, on October 30, 1882.

He had completely recovered ; the parts presented a normal appearance, and the patient's condition justified the opinion that a complete cure had been effected, when suddenly on the morning of November 15th, about four months after the operation, after passing a good night and with no complaint on rising (he had gone to private quarters two weeks previous), he died of suffocation.

The cause of this sudden death is not clearly established, although an autopsy was made seven hours thereafter by Prof. Baumgarten ; the throat and lungs, however, being the only parts examined. The lungs presented the appearance of acute oedema, and were much dilated, nearly hiding the heart from view. From the cut surface exuded much frothy serum, with no trace of blood ; the lung tissue, with the exception of localized old tuberculous nodules of the apices, showed no signs of hemorrhagic infiltration, the smaller bronchi as well being free. The larger bronchi were covered with a moderately thick layer of bloody mucus. The trachea contained a quantity, say about fifty to sixty grammes of fresh, partly coagulated blood intimately mixed with viscid mucus.

The probable source of hemorrhage was the location of the silkworm-gut sutures, which it will be remembered were employed to attach the trachea to the soft parts after operating. These sutures had, after four months, not cut their way through the tissues, but were surrounded by a granulating surface about the size of a pea, and from this, possibly, the hemorrhage originated. Against the acceptance of hemorrhage as a cause of death would stand the fact that during the thirty minutes intervening between the attack and death, no blood escaped from the canula, and only a small quantity found its way into the bronchi. No foreign body was found, and the canula was *in situ* according to the statement of intelligent laymen and the attending physician. The most important revelation of the autopsy, however, was the fact that no recurrence of the disease had taken place. The track of the wound, from the original incision to the pharynx, through which the upper end of the artificial larynx was introduced, was smooth and covered with cicatricial tissue, conveying the impression of a natural canal.

TABLE OF CASES OF COMPLETE EXTIRPATION OF THE LARYNX.

(As far as No. 32, reprinted from the late Dr. Foulis' paper, with his brother's kind permission.)

No.	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
1	P. H. Watson (Edinburgh).	1866.	36	M.	Syphilitic, scarred, contracted state of larynx, especially at its upper end.	Larynx and one ring of trachea.	Patient rallied, but died in three weeks from pneumonia.	P. was in a very weak state, and there was pneumonia suspected before the operation.	Letter from Dr. Watson to Dr. Foulis.
2	Billroth (Vienna).	1873, Dec. 31.	36	M.	Carcinoma of the larynx.	Part of the two upper tracheal rings, cricoid, thyroid, both arytenoid cartilages, and lower third of the epiglottis.	Recovery.	Death from recurrence of the carcinoma seven months after operation.	<i>Archiv. für klin. Chirurgie</i> , B. xvii, No. 11, p. 343.
3	Heine (Prague).	1874, April 28.	50	M.	Carcinoma.	Larynx in toto.	Recovery.	Death from recurrence six months later.	<i>Archiv. f. kl. Chir.</i> , B. xix, p. 584.
4	M. Schmidt (Frankfort).	1874, Aug. 12.	56	M.	Carcinoma.	Cricoid, thyroid, and both arytenoid cartilages.	Death on the fifth day from collapse.	—	<i>Archiv. f. kl. Chir.</i> , B. xviii, No. 1, p. 189.
5	Maas (Freiburg), at that time in Breslau.	1874, June 1.	57	M.	Adeno-fibroma, carcinomatous.	Larynx in toto.	Death two weeks after operation from pneumonia.	—	<i>Archiv. f. kl. Chir.</i> , B. xix, p. 507.

No.	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
6	P. H. Watson (Edinburgh).	1874.	Age.	Sex.	Epithelioma of larynx, extending to left vocal cord.	Larynx in toto.	Death in two weeks from pneumonia.	—	Letter from Dr. Watson to Dr. Foulis.
7	Schönborn (Königsberg).	1875, Jan. 22.	60	M.	Carcinoma.	Larynx in toto.	Death in two days after operation.	—	<i>Berlin. klin. Wochenschrift</i> , 1875, No. 38, p. 525.
8	Bottini (Turin).	1875, Feb. 6.	72	M.	Sarcoma of the larynx, partly round-celled, partly spindle-celled.	Larynx in toto.	Cure. This patient, in May, 1878, was perfectly well, working in fields and acting as a postman between Mi-azzina and Trabarò. [Letter from Signor Domenico Barozzi, Sindaco of Miazina.]	This is the most successful case on record. The patient having been able to undergo considerable labor after the operation. 1875.	“Comunicazione letta Innanzi, La R. Accademia di Medicina di Torino,” dal Prof. Bottini, Seduto del 30 April, 1875.
9	v. Langenbeck (Berlin).	1875, July 21.	57	M.	Carcinoma of upper part of the larynx, the epiglottis, and the hyoid bone.	Larynx in toto, of the hyoid bone, part of the tongue, the pharynx, and œsophagus.	Recovery.	Death four months after the operation, from recurrence of the carcinoma in the lymphatic glands of the neck.	<i>Berl. klin. Wochenschrift</i> , 1875, No. 33, p. 453, and <i>Archiv. f. Chir. B.</i> suppl. p. 136.
10	Billroth (Vienna).	1875, Nov. 11.	54	M.	Carcinoma of the larynx (diagnosed by Prof. Schrötter), affecting the organ generally.	Larynx in toto.	Death on the second day from croupous pneumonia.	—	Information communicated by Dr. Mulhall in reply to inquiries made in Vienna, March, 1879.

	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
			Age.	Sex.					
11	Maas (Freiburg).	1876, Feb. 5.	50	M.	Epithelioma.	Larynx in toto, with exception of the epiglottis and of a small piece of the cricoid cartilage.	Recovery.	About three months later recurrence of the disease in the posterior part of the tongue. No operation allowed. Death six months after the first operation from hemorrhage.	<i>Archiv. f. klin. Chirurgie</i> , B. xx, p. 535, and private communication by Prof. Maas.
12	Gerdes (Tever).	1876, March 30.	76	M.	Carcinoma.	Larynx in toto.	Death on the fourth day from collapse.	—	<i>Archiv. f. klin. Chir.</i> , B. xxi, p. 473.
13	Reyer (Dorpat).	1876, May.	60	M.	Carcinoma of the vocal cords.	Larynx in toto, with the exception of the epiglottis.	Death on the eleventh day from hypostatic pneumonia.	—	<i>St. Petersburg. Wochenschrift</i> , 1877, Nos. 17 and 18.
14	P. H. Watson (Edinburgh).	1876.	60	F.	Epithelioma of the larynx; some adjacent glands enlarged.	Larynx and enlarged glands; cutting the lingual and facial veins.	Death in one week from pulmonary embolism.	Letter from Dr. Watson to Dr. Foulis.	
15	Kosinsky (Warsaw).	1877.	36	F.	Epithelioma of the larynx, with perforation of the skin.	Larynx in toto.	Recovery.	The patient died nine months later, recurrence of the disease having taken place.	<i>Centralblatt f. Chir.</i> , 1877, No. 26, p. 401, and private communication by Dr. Kosinsky.

No.	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
			Age.	Sex.					
16	Foulis (Glasgow).	1877, Sept. 10.	28	M.	Fatty papilloma, partly spindle-celled sarcoma.	Larynx in toto, with the exception of the superior cornua of the thyroid cartilage and half the arytenoid cartilages.	Cure.	Death from tracheal and pulmonary phthisis, March 1, 1879.	<i>Lancet</i> , Oct. 13, 1877, and March 29, 1879.
17	Wegner (Stettin), in at that time in Berlin.	1877, Sept. 16.	52	F.	Carcinoma of the larynx, originating from the and upper half of right ventriculus the cricoid cartilage. Morgagni; size of walnut.	Larynx in toto, with epiglottis and upper half of the cricoid cartilage.	Cure; at the time of communication (seven months after operation) no recurrence.	Exhibited at the Congress of German Surgeons, Berlin, 1878, 12th of August.	Private communication by Dr. Wegner.
18	Bottini (Turin).	1877, Aug. 29.	48	M.	Epithelioma of the larynx.	Whole larynx and portion of oesophagus.	Death on the third day from double pneumonia.	Bloodless operation, having been entirely carried out with the galvanano - cautery knife.	<i>Annales des Maladies de l'Oreille et du Larynx</i> , July 1, 1878.
19	v. Bruns, Sen. (Tübingen).	1878, Jan. 29.	54	M.	Epithelioma.	Entire larynx.	Recovery.	Preliminary tracheotomy was not performed. Died Nov. 1, 1878, from recurrence.	<i>Wiener medic. Presse</i> , Nov. 17, 1878. Further communication from Prof. P. Bruns.
20	Rubio (Madrid).	1878, May 11.	41	M.	Necrosis of the cartilages of the larynx.	Entire larynx.	Death on the fifth day, from marasmus.	—	Observacion clinica, Real Academia de Med., Madrid, 1878.

No.	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
21	Czerny (Heidelberg).	1878, Aug. 24.	46	M.	Sarcoma in and undervocal cords, and perforating the thyroid cartilage, also involving the neighboring glands.	Larynx and glands.	Recovery.	Repeated removal of recurring masses. Death Nov. 30, 1879, fifteen months after operation.	Letter from Geh. Hofrath Czerny to Dr. Foulis. See also Schüller in Billroth and Lücke's <i>Deutsche Chirurgie</i> , p. 200.
22	Billroth (Vienna).	1879, Feb. 27.	43	F.	Epithelial cancer of the pharynx, larynx, and thyroid gland.	Entire larynx, with part of pharynx and oesophagus.	Recovery.	Death from passage of bougie into mediastinum after six weeks.	Private communication by Prof. Billroth.
23	Wm. McEwen (Glasgow).	1879, July 31.	56	M.	Cancer of larynx and upper end of gullet, also a glandular mass at left side of neck.	Larynx, part of gullet, and glandular mass.	Death in three days, from pneumonia.	—	Case-book of Glasgow Royal Infirmary.
24	Caselli (Reggio-Emilia).	1879, Sept. 20.	19	F.	Sarcoma of larynx, pharynx, palate, and base of tongue.	Larynx, pharynx, base of tongue, soft palate, and tonsils.	Recovery.	Well and fit for work in April, 1881, <i>i. e.</i> , twenty months after operation.	<i>Bulletino delle Scienze med.</i> , di Bologna, vol. v, 1880, and letter from Dr. Caselli to Dr. Foulis.
25	F. Lange (New York).	1879, Oct. 12.	74	M.	Sarcoma of larynx, involving the gullet.	Larynx, right horn of the hyoid bone, part of gullet.	Recovery.	Recurrence of a nodule of the sarcoma. Death six months and twenty-four days after the operation, from asphyxia.	ARCHIVES OF LARYNGOLOGY, vol. i, p. 36.

No.	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
26	Carl Reyher (St. Petersburg).	1880.	Age.	Sex.	Carcinoma.	Larynx.	Death on the seventh day, from broncho - pneumonia septica.	—	Letter from Dr. Reyher to Dr. Foulis, and <i>Woenny's Med. Jour.</i> 1880, Heft i.
27	Czerny (Heidelberg).	1880, Oct. 11.	47	M.	Epithelioma of larynx and soft parts over it.	Larynx, and soft tissues in front of it.	Recovery.	Glands affected on Jan. 7, 1881. Death from exhaustion and hemorrhage on 25th March, 1881.	Letter from Geh. Hofrath Czerny to Dr. Foulis.
28	H. Bircher (Aarau).	1880, Dec. 3.	49	F.	Scirrhous of the thyroid gland, involving the larynx.	Thyroid gland excised; six months later the cancer recurred and the larynx was excised, with part of the gullet.	Death in sixteen days, from pneumonia and gangrene of lung.	—	Letter from Dr. Bircher to Dr. Foulis, and <i>Sammlung klin. Vorträge v. Volkmann</i> , No. 222.
29	Pick (London).	1881, June 16.	39	M.	Epithelioma of larynx (preceded by papillomata.)	Larynx and epiglottis.	Death in five days, from pericarditis.	—	<i>Lancet</i> , April 2, 1881, p. 541.
30	Foulis (Glasgow).	1881, April 30.	50	M.	Epithelioma of larynx (preceded by papillomata.)	Larynx.	Recovery.	Went home in five weeks; is now well and strong.	<i>Brit. Med. Jour.</i> , May 7, and June 11, 1881.
31	Czerny (Heidelberg).	1881, May 12.	47	M.	Epithelioma.	Larynx and two upper rings of trachea.	Recovery.	Went home in six weeks; is now well and strong.	Letter from Dr. Czerny to Dr. Foulis.

No.	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
			Age.	Sex.					
32	Carl Reyher (St. Petersburg).	1881, March 14.	57	M.	Carcinoma.	Larynx.	Death on fifth day, from broncho - pneumonia septica.	—	Letter from Dr. Reyher to Dr. Foulis.
33	Multanowski (St. Petersburg).	1875, July 27.	59	M.	Carcinoma.	Larynx in toto.	Recovery demonstrated to the Society of Russian Physicians.	Death three months after operation, from croupous pneumonia.	Letter from Dr. A. Schmidt to Prof. Burow, and <i>Centralbl. f. Chir.</i> , No. 25, 1882.
34	Multanowski (St. Petersburg).	1875, Aug. 9.	47	M.	Carcinoma.	Larynx in toto.		Death two months after operation from recurrence.	
35	Multanowski (St. Petersburg).	1879, Dec. 4.	60	M.	Carcinoma.	Larynx in toto.	Death on the fifth day, from pneumonia.	—	
36	Gussenbauer (Prague).	1879, May 24.	24	M.	Carcinoma.	Larynx in toto.		Death two months after operation, from tuberculosis of the pulmonary monum.	Letter from Prof. Gussenbauer to Prof. Burow.
37	Thiersch (Leipzig).	1880, Feb. 26.	36	M.	Carcinoma.	Larynx in toto and two tracheal rings.	Recovery; some months after operation able for work.	Open wound-dressing.	<i>Deutsche Zeitschrift f. Chirurgie</i> , 1881, p. 149.
38	Thiersch (Leipzig).	1880, Feb. 15.	52	M.	Carcinoma.	Larynx in toto.	Recovery; works as laborer in the forest, even in winter-time, thirteen months after operation.	Open wound-dressing.	

No.	Name of Operator.	* Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
			Age.	Sex.					
39	Hahn (Berlin).	1880, Oct. 23.	67	M.	Carcinoma.	Larynx, with exception of a part of the right thyroid cartilage.	Recovery; free from recurrence after two years after operation.	—	Letter from Dr. Hahn to Prof. Burow.
40	Thiersch (Leipzig).	1880, Nov. 10.	45	F.	Carcinoma.	Larynx in toto.	Recovery.	Death four months after operation; already six weeks after operation recurrence having taken place.	} <i>Deutsche Zeitschrift f. Chir.</i> , 1881, p. 149.
41	Thiersch (Leipzig).	1881, Jan. 17.	57	F.	Carcinoma.	Larynx in toto, and pharynx behind the manubrium sterni.	Death on the seventh day.	—	
42	Winiwarter (Liège).	1881, April.	55	F.	Carcinoma.	Larynx in toto.	Recovery.	No recurrence eleven months after operation.	
43	Tilanus (Amsterdam).	1881, May.	51	M.	Epithelioma.	Larynx in toto.	Death thirty-six hours after operation, from collapse.	—	<i>Clinique Chir. de l' Université de Liège</i> , and <i>Monatschrift f. Ohrenheilk.</i> , 1882, No. 9. <i>Centrallblatt f. Chir.</i> , 1882, No. 34.
44	Albert (Vienna).	1881, July 6.	45	M.	Epithelioma.	Larynx in toto.	Death from bronchitis diffus.	Iodoform wound-dressing.	<i>Wien. med. Presse</i> , 1881, No. 44.
45	Hahn (Berlin).	1881, Aug. 13.	46	M.	Carcinoma.	Larynx in toto.	Death from bronchitis putrida twenty-five days after operation.	—	Letter from Dr. Hahn to Prof. Burow.

No.	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
			Age.	Sex.					
46	Gussenbauer (Prague).	1881, May 19.	48	M.	Carcinoma.	Larynx in toto.	Recovery.	Nineteen months after operation quite well and able to do his duty as riding master.	Letter from Prof. Gussenbauer to Prof. Burow.
47	Gussenbauer (Prague).	1881, October.	62	M.	Carcinoma.	Larynx in toto.	Recovery.	Fourteen months after operation strong and well.	
48	Carl Reyher (St. Petersburg).	1881, Oct. 10.	73	M.	Carcinoma.	Larynx and three upper rings of the trachea.	Recovery; wound - dressing with iodoform.	Death nine months after operation, from recurrence.	Letter from Prof. Reyher to Prof. Burow, and St. Petersburg medicin. Zeitschrift, No. 28, 1882.
49	Carl Reyher (St. Petersburg).	1881, Oct. 10.	65	M.	Carcinoma.	Larynx.	Death on the seventh day from pneumonia septica.	-----	
50	Margary (Turin).	1882.	36	F.	Epithelioma.	Larynx and upper tracheal rings.	-----	Three months and a half after operation first symptoms of recurrence.	Letter from Prof. Reyher to Prof. Burow, and St. Petersburg medicin. Zeitschrift, No. 28, 1882. <i>Archiv Ital. di Laryngologia</i> , No. 1, 1882.

No.	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
51	v. Bergmann (Würzburg).	1882, June 12.	Age. 54	Sex. M.	Carcinoma.	Larynx in toto.	Recovery.	Some months after operation he speaks very well with an artificial (Bruns) larynx.	<i>Sitzungsbericht der Würzburg. Physikal. - Oekonom. Gesellschaft, 1882, and Deutsch. med. Wochenschrift, 1882, No. 35.</i>
52	Kocher (Berne).	1881, May 16.	59	M.	Carcinoma.	Larynx in toto, only a piece of the cricoid cartilage left.	Recovery.	Sixteen months after operation without any recurrence. Patient wears a self-made epiglottis, the excision of the epiglottis having caused a constant choking (Verschlucken, Fehlschlucken) in swallowing.	Letter from Prof. Kocher to Prof. Burow.
53	Burow (Königsberg).	1882, July 7.	44	M.	Carcinoma.	Larynx in toto, without epiglottis.	Recovery; speaks very clearly with a Bruns' artificial larynx.	Death four and a half months after operation, from sudden suffocation.	Not hitherto published.
54	Maydl (Vienna).	1882.	50	M.	Carcinoma.	Larynx without cricoid cartilage. Excision of a carcinomatous gland of the size of a dove's egg.	Recovery.	Without recurrence three months later.	<i>Wien. med. Wochenschrift, 1882, No. 44, and letter from Dr. Maydl to Prof. Burow.</i>

No.	Name of Operator.	Date.	Patient's		Disease.	Parts Removed.	Immediate Result.	Further Remarks.	Recorded in
			Age.	Sex.					
55	Ruggi.	1882.	10	M.	Polypi of the larynx.	Larynx in toto.	Recovery in twenty - eight days.	—	<i>Centralblatt f. Chir.</i> , 1882, No. 45.
56	Carl Reyher (St. Petersburg).	1882, April 7.	55	M.	Carcinoma epitheloides.	Larynx in toto, pharynx, and parts of cesophagus.	Death fourteen days after operation, from exhaustion.	—	Letter from Prof. Reyher to Prof. Burow.
57	Völker (Brunswick).	1881, May 28.	44	F.	Carcinoma epitheloides.	Larynx in toto.	Recovery.	Death five months after operation, from suffocation during the short time that patient took out the canula in order to clean it.	J. F. Cönen, over laryngis <i>Acadefocation mifch Pref-</i> the short time <i>fchrift</i> , Amster- dam, 1882, pp. 84 and 112.
58	Kocher (Berne).	1882, Sept. 28.	43	M.	Carcinoma.	Larynx in toto, and a piece of cesophagus eight centimetres in length.	Recovery.	Wound-dressing with bismuthum subnitricum.	<i>Sammlung klin. Vorträge</i> , von Volkmann, No. 224, p. 1944.
59	Kocher (Berne).	1882, May 13.	54	M.	Carcinoma.	Larynx in toto and carcinomatous glands.	Recovery.	Wound-dressing with bismuthum subnitricum. Seven months later recurrence.	Letter from Prof. Kocher to Prof. Burow.

CAN DIPHTHERIA BE COMMUNICATED BY A BITE?

By GEORGE M. LEFFERTS, M.D.,

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ALTHOUGH both the probability and the possibility of direct inoculation with either the membranous or sanguineous products of a diphtheria have been denied, for direct experimentation with false membranes, as a rule, has failed, both in man and the lower animals, to artificially produce the true disease, and the few cases on record of inoculation with diphtheritic blood are open to serious question as to the true active cause of the disease in the given instances. Although the weight of evidence is, as must be admitted, against the question, clinical facts do exist which not only shake our confidence in the apparently established theories, but are at war with the results of experience—facts which certainly seem to argue, even if they do not prove, the correctness of an affirmative answer to a query such as the above.

One such fact is, I hold, furnished in the following history, which is a personal one :

I was suddenly summoned to attend and perform tracheotomy in a case of undoubted diphtheria, which had developed urgent symptoms of dyspnœa. In the hurry and confusion following my arrival, the child being semi-unconscious and dying, and the room filled with excited relatives, I attempted to make an examination of the throat, and in so doing, to force open the mouth, unwisely thrust the index finger of my right hand between the teeth. It

was seized quickly and spasmodically by the irresponsible child and bitten severely, the canine tooth pushing its point directly through the root of the finger-nail. Although the pain was great, and the possible danger of proceeding in such a case with an open and fresh wound suggested itself, no time for deliberation, delay, or dressing was afforded. The child had ceased breathing, was quickly placed upon the table, a tracheotomy tube inserted, and respiration reëstablished. It died forty-eight hours later, from an extension of the membranous deposit downward and general systemic poisoning. The case, although not as extreme an instance of diphtheria as I have seen, by any means, was a pronounced and dangerous one. During the operative steps, and specially after the trachea was opened and shreds of false membrane being removed, the wounded finger was constantly bathed in the pernicious fluids.

Thus ended the first stage, or, as I do not hesitate to call it, the inoculation.

During the following day the finger and hand became much swollen and very painful ; chains of enlarged lymphatics appeared as reddish cords extending along the arm, and the glands in the right axilla inflamed. Temperature arose to 102° , and febrile reaction, preceded by frequent chills, was marked. These symptoms continuing, sore throat developed on the morning of the third day, and by evening well-developed diphtheritic patches appeared over both tonsils. These, during the next twelve hours, spread and increased, nearly covering the right, less extensive on the left, tonsil ; temperature 103° , and glands below the angle of the jaw swollen, febrile movement pronounced, pulse weak and compressible, and extreme debility.

The subsequent history is that of the progress, and then gradual subsidence, of a moderately severe case of diphtheria, and need not here be detailed. A considerable degree of prostration followed the latter stage, and the sense of weakness was not overcome for many days after the disappearance of the local affection. The finger, the nail of which was subsequently lost, was incised. No diphtheritic membrane appeared at any time at the site of the original injury.

Such is my story ; whether or no the facts will bear the interpretation that I have put upon them, is for my

readers to judge. It may be urged—probably will be—by those interested in the question, that I was exposed to the general influence of the contagion, and that therein, and not in inoculation, lies the cause of the development of the disease in my case. It may be; I can only say that I have been repeatedly exposed to cases much more virulent than the present, and have thus far, with this one exception, fortunately escaped. The history of the exception I have given; the coincidence, if it be nothing more, is to my mind striking and suggestive.

The literature of the subject, viz: *inoculation* of diphtheritic poison by false membrane or with the blood of a patient suffering from the disease, is meagre.

At the moment, I can turn to but one recorded case at all similar to that which I have detailed. It is related by Paterson,¹ and concerns a practitioner who thrust his finger, upon which was located a slight abrasion, down the throat of a child suffering from diphtheria. The abrasion became an ulceration, the general systemic poisoning of diphtheria ensued, and general paralysis of the extremities followed the active stage of the disease. The best general *résumé* of the subject I find in the valuable monograph of Mackenzie.² Here, we are told, as is generally known, that the experiments of Trousseau,³ Peter and Duchamp⁴ upon themselves, with the direct inoculation by means of diphtheritic membrane, failed. Harley's⁵ experiments upon animals gave only negative results. Trendelenburg⁶ and Oertel,⁷ with rabbits, were more successful, irritation of the tracheal mucous membrane with diphtheritic matter being followed by the formation of a diphtheritic membrane, and the animals dying later with all the symptoms of general infection.

Nassiloff⁸ and Eberth⁹ produced diphtheritic keratitis by

¹ *Medical Times and Gazette*, 1866.

² "Diphtheria," London, 1879.

³ *Clin. Lectures: New Syd. Soc. Trans*, vol. ii, p. 335.

⁴ *Thèse de Paris*, 1875.

⁵ *Path. Trans.*, Lond., vol x, p. 315.

⁶ *Arch. für klin. Chir.*, x, 2, 1869.

⁷ *Ziemssen's Cyclopædia*.

⁸ *Virchow's Archiv*, p. 550, 1872.

⁹ *Correspondenzblatt*, 1872.

direct inoculation. Hueter and Tommasi,¹ as well as Oertel, in experimentation upon the muscles of animals, found that inoculation was followed by the formation of a diphtheritic membrane about the edges of the wound, and general blood poisoning followed. Mackenzie remarks that, although in some of these experiments a false membrane was produced, the septicæmia may have been merely the result of inoculation with decomposing animal matter, and it cannot be considered that true diphtheria, with its specific manifestations, has yet been artificially produced by inoculation of the lower animals, though certain local phenomena of great interest and importance have been induced.

As regards the question of the possibility of inoculation by diphtheritic blood, the testimony of the very few cases on record is, as I have said above, at least open to debate. Two objections present themselves; both, I admit, exist in my own case. First, that in each instance where, through accidental wounding of the finger or hand, by knife-point or otherwise, poisoned blood presumably entered the system, the operator was also necessarily exposed to the contagion, and may have incurred the disease in the ordinary way; and second, as Klein² has shown, that, as it is very difficult to inoculate with blood in other diseases of much higher contagious power, it is improbable that diphtheria can originate in this way.

Both sides of the question have been given. Which is right, I am not prepared, in the face of so much that is conflicting, to assert. I can but repeat that my own case, modest contribution as it is to an interesting subject, even though it be not conclusive—although it be regarded alone, as far as the lesions are concerned, as a coincidence—is to me—perhaps it will be to others—suggestive at least of the truth of my opening query.

¹ *Centralblatt für med. Wissensch.*, p. 34, 1868.

² *Quar. Jour. of Microscopical Science*, vol. xviii, p. 169.

A CONTRIBUTION TO THE HISTORY OF LARYNGOSCOPY.

By LOUIS ELSBERG, M.D.,

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I N a lecture on the History of Laryngoscopy, which I published some years ago (*Philadelphia Medical Times*, Nov. 29, 1873), I alluded to the fact that at the same time that Türck and Czermak first experimented with the laryngoscopic mirror, the problem of throat exploration occupied Dr. Cutter, then of Woburn, Mass., now of New York City. In the beginning of the year 1858 the following correspondence took place between Dr. Cutter and Mr. G. B. Clark, one of the firm of Alvan Clark & Sons, Cambridge, the celebrated telescope makers. I have long been cognizant of this correspondence, and regard it of sufficient historical interest to place it on record. It is of course well known that in Bozzini's original *Lichtleiter* there were tubular specula; that Selligue's laryngoscope consisted of a double-tubed speculum; and that Warden had conceived the idea of employing a prism for obtaining a view of the larynx.

BUFFALO, N. Y., Jan. 5, 1858.

MR. G. B. CLARK,

SIR: Some time last summer, 1857, while in your workshop, I suggested to you the idea of exploring the throat by means of an instrument, the principle of which I endeavored to explain at that time. The project seemed feasible to you. Since then I have thought much upon it, and I now write to ask you to prepare the instrument in a rough way for the sake of the experiment.

The principle is to change the direction of a ray of light thrown into the throat, to a right angle from its axis. This I believe is accomplished in some optical instruments by an Amici's prism, or simply a common prism. (I think it would be better to turn the ray by refraction than by reflection.) My idea is to adapt such a prism which will turn a ray of light to a right angle from its axis, fitted to a tube long enough to manipulate about the mouth with ease. I propose to have two such tubes, one for observation, and the other for illumination.

I think the material had better be ebony, or ivory, or better, bone, such that the teeth will not injure. For the present instance, as an experiment, I think tin will answer.

At first I thought the tubes had better be cylindrical, but if you think that the optical effect would not be injured, I should prefer them with square sides. The illuminator should be bright on the inside, the observing tube blackened on the inside. I am not sure of the thing, and perhaps for the purpose of experimentation, common tinned iron would answer. The following rough diagrams will give you, I think, a sufficient working model :

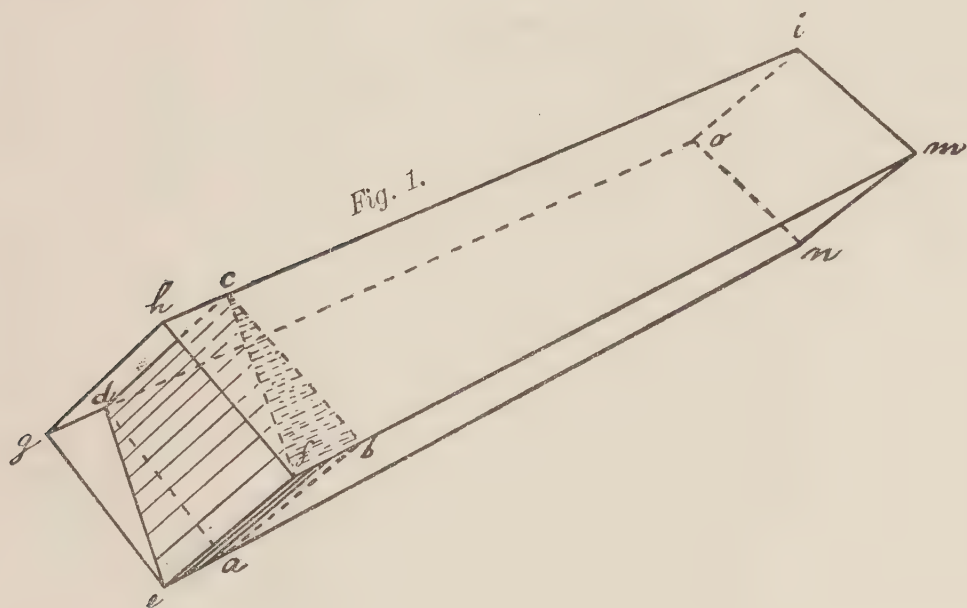
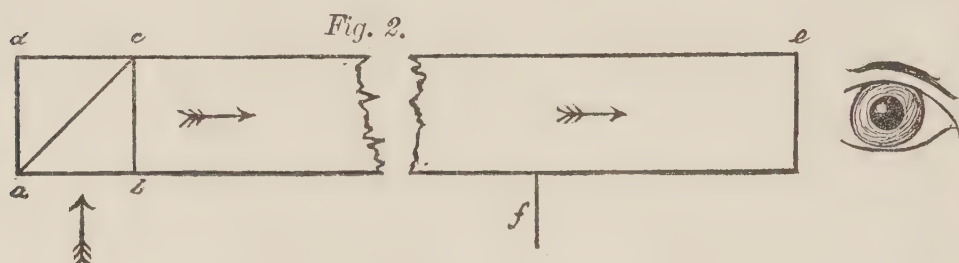


Fig 1. The observing tube. Perspective view. $abcdef$, the prism set in the square tube. ef , $\frac{1}{2}$ inch ; fh , $\frac{1}{2}$ inch ; so also im , $\frac{1}{2}$ inch ; hi , the length, 6 inches. The corners at h and g might be rounded a little.

Fig. 2. The same in longitudinal section. abc , the prism. The measurements laterally being on the outside $\frac{1}{2}$ inch ; de , the

length, 6 inches ; f (not shown in fig. 1), stop or guard, $\frac{1}{2}$ inch wide, projecting downward 2 inches ; slit in the tube through which a screw passes to set it, to prevent pushing the instrument



too far into the throat, to be capable of being moved, and of being fixed somewhat firmly. The arrows show the direction of a ray of light coming out.

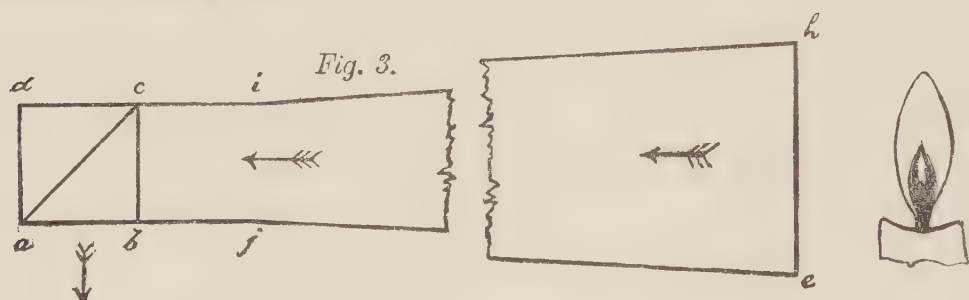


Fig. 3. The illuminating tube in section. abc , prism ; ab , $\frac{1}{2}$ inch ; bc , $\frac{1}{2}$ inch ; eh , 1 inch, open to the candle for illumination.

Perhaps a better form would be fig. 4, longitudinal section.

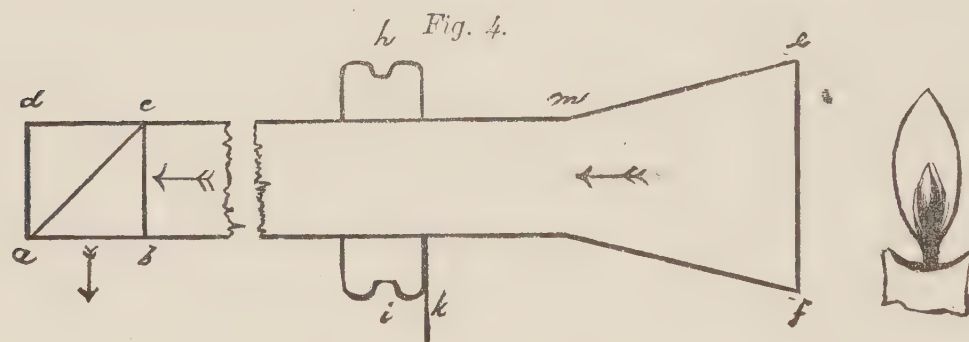


Fig. 4. abc , prism. Measurements as above. hi , a grooved ring of wood capable of being moved to act as a holder, and to prevent the instrument from slipping in too far ; k , strip for additional guard ; md , 5 inches.

I think you can make the tubes best square. The whole thing is very simple, and I think that you could manufacture them in a day easily. I suppose that your time is very much taken up, still

from what passed between us last summer, and from your intimacy with my cousin, S. L. Cutter, Jr., I have presumed thus to write you. I hope that you will conclude to make and get them done and send them to my address in Woburn, Mass., by the 24th of this month sure, for by that time I shall have returned from this, my winter vacation in the West.

To recapitulate, I would have the material of the tubes, for the purpose of experiment, common tinned iron. The tubes at the end where the prism is, square. Length of the tubes 6 inches. Diameter both ends of the observing tube $\frac{1}{2}$ inch ; of the illuminator, prism end one half, the other end one inch. The ring on the illuminator, for the teeth, to be made of hard wood. The whole apparatus to be capable of standing a heat of 98° to 100° (Fahren.). To be completed, if possible, before the 24th of January. It will be necessary to have the air inhaled of the above temperature, or moisture will be deposited upon the prisms.

Truly yours,
EPHRAIM CUTTER, M.D.

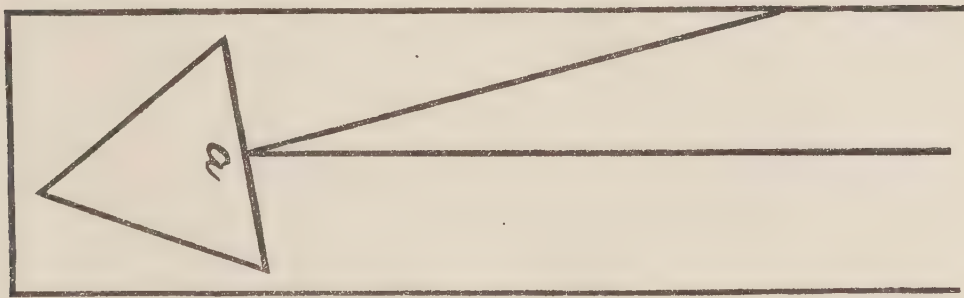
EAST CAMBRIDGE, Jan. 28, 1859.

DR. CUTTER,

DEAR SIR : The right-angled prism did not answer the purpose at all ; there was a reflection from the side of it toward the eye, which put every thing else in the shade.

I then made the prism which I have sent, so that what light is reflected from the surface *a*, instead of being sent straight up into the eye, is sent against the side of the tube. Fig. 5.

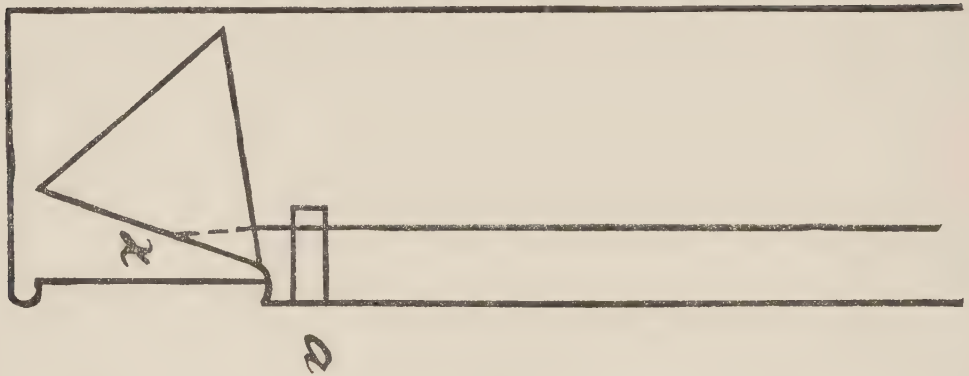
Fig. 5.



I had to put a stop *a* over the prism to cut off a very bright reflection from *x*. Fig 6.

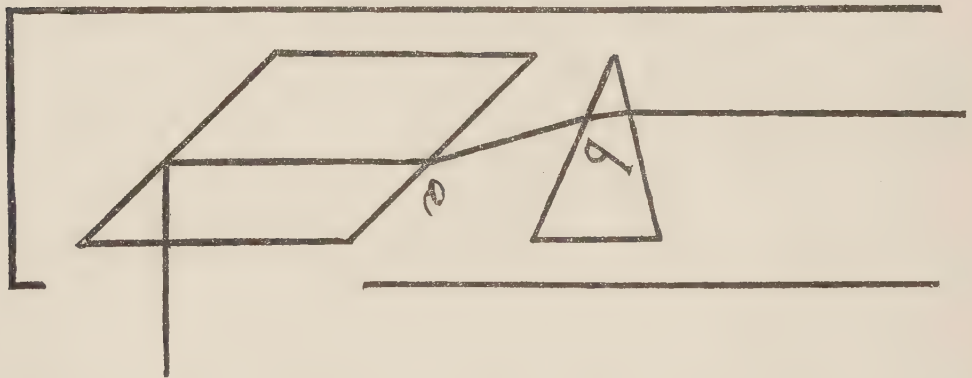
The only trouble with this prism is the small field compared with the other. As you will probably have occasion to turn the instrument to look on all sides of the mouth, so I think the upper end of the tube had better be round than elliptical.

Fig. 6.



The stop to regulate the distance into the mouth should be a ring. If you have but a narrow stop when you rotate the tube you will bring the stop crossways the mouth, and you will lose your instrument down your patient's throat. I think an India-rubber ring sprung round the tube would answer very well. By using two prisms, as in the rough drawing, I think we can make a better instrument. The light in passing out at *a*, will be refracted and decomposed, and will be set right by prism *b*. Fig. 7.

Fig. 7.



I will make such a thing if you think best. Perhaps the other will work well enough. I have put a thick coat of lacquer on the tube so you can try it without tasting brass. If you think it worth it, send it down and I will get it silvered.

In trying it I used a bit of looking-glass with a hole scratched through the silver. Use sunlight.

The prism is silvered and not very well finished, but if it works well, when it comes back to be silvered I will finish it better. I did not like to finish or spend much time on it till I got it working all right.

Yours,

G. B. CLARK.

Fig. 6 was the laryngoscope as made by Mr. G. B. Clark.

CLINICAL NOTES.

CASE OF COMPLETE LARYNGEAL FISTULA; ELECTROLYSIS CURE.

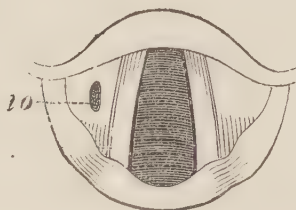
By PUGIN THORNTON,
LONDON, ENGLAND.

In the ARCHIVES OF LARYNGOLOGY for January of this year, Dr. George M. Lefferts related the history of a *complete* laryngeal fistula, and remarked that such fistulæ were sufficiently rare to be of general interest.

On reading the notes of this interesting case, with its successful termination, I was reminded of a case of laryngeal fistula which came under my care some few years ago. I had intended at the time publishing the following notes, together with the histories of two bronchial fistulæ, but for some reason or another I never did. I propose now taking advantage of Dr. Lefferts' communication.

Miss —, aged thirty-seven, was sent to me by Dr. Young, of Florence, in the spring of 1876. According to Miss — account, she noticed, in January, 1875, a diffused swelling, extending from the chin downward. The swelling made it painful for her to bend her head forward, and it felt about "the thickness and hardness of the neck of a bottle." She thought it came after a cold which she caught from sitting in a draught. Iodine was applied, and the tumor in a few days had nearly disappeared, when, after walking in a keen northeast wind, it again became enlarged. This time it was defined and not larger than a filbert. Iodine was re-applied, but as no good was effected, the swelling was opened. This swelling was said to have been "of a cystic nature—not an abscess." After there had been a discharge for ten days, a fistulous tract was discovered. This was injected with iodine, which was immediately tasted by the patient, and for some days matter was constantly noticed in the throat.

Several weeks after the opening of the swelling, Miss — went under Dr. Young's care. On passing a probe into the wound, this gentleman "found that it penetrated to a depth of nearly $2\frac{3}{4}$ inches," and on making a laryngoscopic examination, he discovered a spot in the fossa innominata covered by a drop of sanious pus. Dr. Young kindly forwarded me a sketch showing



io, internal opening of fistula.

the position of this opening, remarking that if he wiped the pus away, and waited for fifteen minutes before replacing the mirror, he found a fresh quantity of pus, but that he never saw the opening from which the pus exuded. He went on to say: "When I saw her there was a diffused tender swelling involving the cricoid and thyroid cartilages on the right side. About the centre of the swelling, *i. e.*, over the junction of the cricoid and thyroid cartilages, there was a single pouting orifice, the edges of which were considerably thickened. A probe passed through this opening could be made to pass in two distinct directions—the one seemingly between the superficial structures and right half of the thyroid, the other went obliquely inward. Always when the probe was passed in this direction, it caused considerable coughing and irritation in the larynx. I injected carbolic acid (one in sixty) into both places. It caused no annoyance when introduced into the first-mentioned tract, but always brought on a fit of coughing when injected in the second direction, and Miss — tasted the carbolic acid for some little time afterward. I was never conscious of air passing through the opening unless during the introduction of the probe, when it certainly did pass. During all the time she was under my care there was more or less discharge through the external opening. A fortnight after the carbolic acid injection had been used, the internal opening closed up. Miss —, during the latter week the injections were employed, never tasted them. Discharge now ceased, and it seemed as if a cure had been effected. Subsequently, however, after some cold weather, a swelling appeared as before, followed by a continuous

discharge. Iodine injections were employed for three weeks without once being tasted."

A month after leaving Dr. Young's care, whilst staying in Paris, and the discharge had entirely ceased, Miss — was told that it would never return. Removal of the flap, with paring and drawing together of the edges, was suggested and carried out ; but very shortly after, the opening returned larger than it was before, and at the same time the discharge again broke out.

Arriving in England, Miss — saw Sir James Paget, who advised that the fistulous tract should be excised, but this plan of treatment was refused. Subsequent to this, a London physician recommended, after he had tried various remedies without success, that a canula should be worn in the tract. From June, 1875, to April, 1876, this method was persevered with, although it greatly increased the patient's discomfort, without bringing any relief.

In March, 1876. Miss — again saw Dr. Young in Florence. A probe could then be passed up the fistulous tract for about the distance of an inch.

In the following April I first saw this lady. She was then wearing a canula one half inch long, and through it there appeared a continuous, but very slight, oozing of thin pus, which was unaffected by meals, etc. She stated that, always on the reappearance of the discharge, there had been a temporary enlargement of some of the cervical glands. There was no history of any similar affection in any member of her family, past or present. No pain was now experienced, but that the annoyance of the constant discharge had, Miss — stated, materially affected her health and spirits.

I found that a very fine probe could be passed into the fistula for the distance of three quarters of an inch in a slightly upward direction, and toward the interior of the larynx ; but on no occasion was the other and more superficial tract discovered. The orifice lay in a small puckered fold of skin in the position described by Dr. Young. There was no cough on the introduction of the probe. On making a laryngoscopic examination, no opening was seen in the larynx, or scar of former aperture.

A discontinuance of the canula was recommended, and a needle having been made sufficiently fine to pass to the end of the fistula, I commenced electrolysis on April the 18th. Four applications of about three minutes' duration were made, employing ten to fifteen cells of a continuous battery ; but finding, on May the 5th, my efforts to close the fistula unsuccessful, and it being

impossible to use a stronger current on account of the increased pain, I obtained the service of Mr. James E. Adams, and with his assistance, Miss ——— having been put under the influence of nitrous oxide gas, I used the needle for two minutes with as many as thirty cells attached.

Nine days after, I examined the fistula and found the probe could be passed for the distance of half an inch, but not for three quarters as before. On the 25th I repeated the process, Mr. Adams present, applying the current for a longer period, and on June the 8th I found that the fissure was completely closed. From that date to three years after the operation (the last time I heard from this patient) the fistula had remained closed, and there never had at any time been any discharge, although after "catching cold" occasionally the cervical glands had become temporarily enlarged.

Galvano-cautery treatment could not have been employed in this case on account of the smallness of the fistulous tract.

CASE OF EXSECTION OF THE RIGHT HALF OF THE LARYNX FOR EPITHELIOMA.

By CLINTON WAGNER, M.D.,

NEW YORK.

In the ARCHIVES OF LARYNGOLOGY for January, 1883, under the heading "Ossification of the right arytenoid cartilage; separation and expulsion following thyrotomy for the removal of a papilloma," the history of the following case is brought down to May 15, 1882.

The Philadelphia *Medical News* for February 3, 1883, contains a clinical lecture delivered by me on "Intra-laryngeal growths," at the New York Post-Graduate Medical College, in which the record of the case is given to January 25, 1883.

The second thyrotomy for the removal of what was supposed at the time to be a papilloma was performed in October, 1882, at the Metropolitan Throat Hospital.

Sixteen weeks later, I observed on the anterior wall of the trachea, a little to the right of my incision for the insertion of the canula, which had been removed about six weeks after the operation, a suspicious-looking point about the size of a small pea, resembling very much in appearance the granulations found at the orifices of fistulæ leading to necrosed bone or cartilage.

Within one week, the calibre of the larynx had materially lessened, and his breathing was greatly impaired. I proposed operating the following day, but at the request of the patient delayed a week for the return of his brother, who was absent from the city.

On February 22d, he was admitted into the Metropolitan Throat Hospital, and the operation performed on the same day. The canula was rapidly introduced, immediately after which he was brought under the influence of ether.

An incision was then made extending from the hyoid bone to the canula, the integument and muscles were rapidly dissected from the right side, the canula removed, and the cricoid and thyroid divided in the median line from below upward; the thyrohyoid membrane was severed from the median line outward, the knife being kept closely to the superior border of the thyroid; the right half of the thyroid was separated from its muscular attachments, carefully dissected from the pharynx, and the posterior wall of the cricoid and thyroid divided in the median line by the bone forceps, and removed with the right half of the first ring of the trachea. But little blood was lost during the operation; no ligatures were applied. The operation completed, the patient was put to bed and morphia and whiskey given hypodermically.

The wound was kept open and packed with carbolated cotton; on the following day a drainage-tube was introduced. The patient was fed several times a day liberally, with Valentine's beef juice, milk, and whiskey; quinine was also given. By keeping the point of the bougie in contact with the posterior wall of the pharynx, and a little to the left of the median line, no difficulty was encountered in its passage to the stomach through the mouth.

The patient progressed favorably toward recovery; during the first week his temperature did not exceed $101\frac{8}{10}^{\circ}$, and for several days just preceding his death it ranged from normal to 99° .

On the day after the operation he could swallow liquids, and had he lived, that function would have been fully restored. On the morning of the tenth day after the operation, he declared that he felt so well that he thought he could return to his home within a few days; the following afternoon symptoms of collapse set in and death took place within twenty hours, or the twelfth day after the operation.

Remarks — For the radical cure of cancer of the larynx, extirpation of the entire organ, instead only of the portion invaded by the disease, has found favor with surgeons.

In those cases in which both sides of the thyroid are involved, of course, the operator has no choice ; but wherever, as in the case above described, the disease is clearly uni-lateral, I think excision of the diseased half only should commend itself for the following reasons :

1. The disease can be as thoroughly eradicated.
2. The shock to the system is less.
3. Mechanical appliances for the feeding of the patient, after healing and cicatrization have taken place, will not be required ; the attachments of the pharyngeal muscles at one side being undisturbed, the function of swallowing remains, and, during the healing of the wound, bougies for conveying food to the stomach can readily be passed through the mouth.

EXCESSIVE HEMORRHAGE FROM A SLIGHT OPERATION UPON THE SEPTUM NARIUM.

By ANDREW H. SMITH, M. D., New York.

SURGEON TO THE THROAT DEPARTMENT OF THE MANHATTAN EYE AND EAR HOSPITAL.

E. M., aged about sixty three, presented himself at the hospital clinic in November, 1882, with obstruction of the left nostril, occasioned in part by a sharp horizontal ridge projecting from the cartilaginous portion of the septum. The apex of this ridge was removed with the bistoury, leaving a cut surface about four lines long by less than a line and a half in breadth.

The operation was accompanied by a profuse flow of florid blood, the stream as it left the nostril being as large as the shank of a laryngeal mirror.

This continued for some minutes without any abatement, when it was arrested by pressing cotton loaded with dry tannin upon the bleeding surface.

During the following night, however, the hemorrhage recommenced and a large amount of blood was lost before medical aid could be procured. It became necessary to plug the nostril both in front and from behind, which was very skilfully done by Dr. W. H. Henry, residing in the neighborhood of the patient. The plug being removed forty-eight hours later, the bleeding recurred soon after to such an extent as to take the patient completely off his feet, and to compel him to keep his bed for several days.

The nostril was plugged a second time, but the following day

a considerable bleeding occurred notwithstanding, the blood forcing its way beside the plug, but this was checked by injecting persulphate of iron.

When I saw the patient, six days after the operation, his lips were bloodless, and his face had the tallowy appearance indicative of severe hemorrhage.

That so much blood should be lost from so small a surface, would indicate that a vessel of considerable size must have traversed the ridge, reaching nearly to the crest,—a very unusual circumstance. Section of the quasi erectile tissue covering the turbinated bones is expected to be attended by considerable bleeding, but the cartilage of the septum is ordinarily but sparingly supplied with vessels.

CASE OF ACUTE IDIOPATHIC PERICHONDritis AND ABSCESS
OF THE NASAL SEPTUM.

By D. BRYSON DELAVAN, M.D.,
NEW YORK.

With the exception of one published by Dr. Clinton Wagner,¹ we have been unable to find a case similar to the following on record :

The patient, a young lady of sixteen, was a well-developed, robust blonde, with regular features and straight, finely formed nose. Her own previous history, and that of her family, was excellent. No evidence of any constitutional taint, either congenital or acquired, could be discovered. Her illnesses had been confined to those incident to early childhood, and even they had not been severe. Four days after the beginning of the herein-described attack, she presented herself for treatment, and stated that the difficulty began after the manner of a simple acute coryza, the result apparently of an ordinary cold. The symptoms, however, increased rapidly in severity. The mucous lining of both nasal cavities continued to swell ; and pain, at first absent, within thirty-six hours became a marked feature. It was described as first lancinating in character, and later as throbbing. During the first day the patient had a slight chill, followed by fever. Meanwhile the pain and fever had continued, and the general condition had grown steadily worse, until becoming seriously alarmed, she sought surgical aid.

¹ Vol. i. of these ARCHIVES, No. 1.

When first seen the pulse was 120 ; temperature, 103° ; tongue coated ; bowels constipated. Externally the nose was greatly enlarged in size laterally, and was of an unhealthy erysipelatous livid hue. Both nostrils were completely occluded by their own mucous lining, which protruded in considerable masses from each, and there was an abundant mucous discharge. By means of a small flat probe it was easily demonstrated that the swelling extended in the direction from within outward. From the above data it was not difficult to diagnose an acute inflammatory process, originating in the deeper region of the nasal chambers and in the vicinity of the septum. The prognosis in such a case is of course serious as regards the integrity of the nose, for, even if the outer structures do not slough, the loss of the septum will be followed by a corresponding flattening of the nose. The actual danger also to life, either from erysipelas or from septicæmia, is also by no means inconsiderable ; so that active interference seemed urgently indicated. Accordingly, by means of a small round-tipped tenotomy knife a free incision was made upward and backward on both sides of the septum, about an inch and a quarter from the meatus. From this about two drachms of ichorous pus was evacuated, and there was a free discharge of blood. Upon examining the cavity of the abscess with a probe, it was found that a perforation at least half an inch in diameter existed in the cartilaginous septum at its junction with the vomer. The cavity was cleansed with an antiseptic solution and free drainage maintained by means of a pledget of cotton-wick passed up one nostril, through the perforation, and down the other, the ends of the dressing being allowed to protrude from each nostril. Lead-and-opium wash was applied to the nose externally, and appropriate constitutional measures instituted. Relief was immediate. All of the active symptoms quickly subsided, and under a treatment which consisted almost entirely in keeping the parts carefully cleansed, the healing process was soon established ; exuberant granulations were removed when necessary, and an effort made to prevent the formation of large cicatrices. A month after the first appearance of the abscess the perforation of the septum had almost closed and all discharge had ceased, to the great satisfaction of the patient. The external deformity which resulted was very slight, and was scarcely perceptible.

CASE OF CHRONIC PHARYNGO-NASAL CATARRH.

By HENRY SCHWEIG, M.D.,

NEW YORK.

On January 20th, Mr. L., æt. twenty-four, presented himself at my office with a history of pharyngo-nasal catarrh, dating back to the winter of 1880. No cause for the malady could be elicited, patient giving a good personal as well as family history. Rhinoscopical examination revealed a state of affairs certainly not encouraging. The anterior nasal mucous membrane was thrown into polypoid folds and thickened, the posterior nasal space bathed in a mucopurulent secretion, the pharynx studded with enlarged and degenerated follicles, and the epiglottis much eroded. The sense of smell was also affected, and during conversation with patient the characteristic odor peculiar to these cases became disagreeably manifest.

The patient stated that advice had been promptly sought at the outset of his trouble, and relief had thus far been obtained but for a few days at a time, and then only when some new form of treatment had been instituted. Thus he had been compelled to submit to the changes rung on sprays, insufflations, inhalations, brushes, etc., without experiencing lasting improvement.

The fact that none of the courses of treatment adopted in the case had modified it favorably seemed to point to some oversight or radical error, and this, taking the facts into consideration, appeared to be in the manner of applying the proper remedies.

It is well known that the secretions in cases of pharyngo-nasal catarrh are generally thick and tenacious, adhering to the surface from which they exude. The application, therefore, to such a surface must necessarily be of a kind to insure proper removal of mucus, and through application of the remedy to the *cleansed* membrane.

To secure the best results, the applicator of Dr. Elsberg was used, and armed with a cotton wad introduced behind the velum of the palate, whence it was withdrawn saturated with the secretions. The pharynx, larynx, and anterior nasal passages were likewise thoroughly cleansed, and then with a fresh wad a thorough application of the saturated ethereal solution of iodoform was made. For five days following the operation, daily applications were practised, always taking pains to clean the mucous membrane thoroughly before applying the remedy.

The decided decrease in the amount of secretion, as well as a fear that the daily introduction of an instrument might prove

injurious, prompted me to direct patient to call at intervals of two days. The iodoform treatment was continued, and in every instance thoroughly and efficiently applied, *i. e.*, to the *clean mucous membrane*. The improvement in the case now became very gratifying; the sense of smell became more acute from day to day, the secretion less, and the offensive odor fast disappeared. The treatment has not been changed, and the patient is now practically cured, the secretions of the parts being normal in quality, and the thickened and varicose condition bidding fair to disappear soon. The very frequent error of applying remedies to the *abnormal secretion* covering the parts, and not to the *mucous membrane itself*, is one daily committed, and is really the cause of much annoyance and suffering to the patient. Sprays are used under the fallacious idea that the diseased mucous membrane is affected thereby, when in reality the tenacious secretion covering it is only slightly disturbed. Powders are used which occasionally are not only useless, but positively hurtful, covering and retaining in place, as they do, the morbid products; and brushes are faithfully pushed behind the velum with but indifferent success.

For some mysterious reason which has not yet been satisfactorily explained, those surgical principles which are applied to other parts of the human anatomy, are lost sight of when the Schneiderian membrane and other component parts of the respiratory tract come into play. One would scarcely proceed to dress a wound covered with pus, dead epithelial cells, etc., without first cleansing it, nor would an application in a case of cervical catarrh be considered a proper one, unless preceded by a thorough cleansing of the parts. But in the local treatment of nose and pharynx a recklessness seems to prevail, peculiar in its persistency as it is fatal to the best interests of patients. Local applications which promised so much are coming into disrepute with some practitioners, and for no other reason than the barrenness of results which they show. And this will continue for just so long as those primary principles of surgery are lost sight of, without which successful practice becomes impossible. There is no reason why the lining membrane of the nose, pharynx, and larynx should not be amenable to similar treatment as other mucous surfaces, and I trust that the time may not be far distant when cases of pharyngo-nasal catarrh, pharyngitis, laryngitis, etc., will be looked upon as affections requiring that treatment which is based rather on broad surgical and rational principles, than on a line of practice unsatisfactory in its results as it is irrational in principle.

CASE OF RHEUMATIC (?) PARALYSIS OF THE RIGHT VOCAL CORD; GRADUAL COMPLETE RECOVERY; FOLLOWED NINE YEARS LATER BY RHEUMATIC (?) PARALYSIS OF THE LEFT VOCAL CORD, ALSO WITH GRADUAL COMPLETE RECOVERY.

By F. I. KNIGHT, M.D.,

BOSTON.

The following case is interesting, in the first place, as showing recovery from a unilateral paralysis which, though not very uncommon, and depending, of course, on the exact physical condition, is sufficiently doubtful to make a favorable result very welcome to the practitioner who has the responsibility of the case; and it is very interesting, in the second place, from the subsequent occurrence of paralysis of the opposite cord, also followed by recovery. It is also interesting as, perhaps, an illustration of rheumatic paralysis. It occurred the first time after exposure, and the second time in connection with rheumatism elsewhere. Undoubtedly the term "rheumatic" has been too frequently applied by some writers to cases of paralysis in which the cause was obscure. This case, however, seems peculiarly fit to be so classed.

On February 21, 1872, I was asked to see a patient, a school teacher by profession, thirty-five years of age, in consultation with Dr. Ellis. He had a complete paralysis of the right vocal cord, which remained motionless in the cadaveric position.

About three weeks later this patient was transferred to me by Dr. Ellis for treatment, when I made the following notes of his history. He had never had long sickness. He had had, in years past, several attacks of sore throat, with fever lasting from a few days to a week. For a year or two there had been evidence of digestive derangement, experienced particularly after dinner, drowsiness, flatulence, and sense of fulness. In April and May, 1872, he had not felt so vigorous as usual, but he performed his school duties the same as usual. Working in his garden tired him. During the first week in June, on several occasions he over-exerted himself in the garden, and on the last of these he got much heated.

On going into the house he put on shawls. He felt no real chill, but was sometimes cold when he moved. That night when he went to bed he experienced an unnatural sensation in a circumscribed spot inside and above the right nipple. He took aconite and the next day felt as well as usual. He went on for a

week with his school duties, doing also a little garden work, and felt well. He not only talked but sang in school as usual. At the end of a week it occurred to him, after singing, that he had to force his voice a little, and when he moved his neck he felt something unusual, just above the left clavicle, near the sternum. Next day he thought nothing about it, but on the second morning after, when he awoke, he found his voice quite hoarse and higher in pitch than natural. It was difficult to speak at all, and he was obliged to get an assistant to make announcements, etc., in school. On the fourth day of hoarseness he felt an uneasy dragging sensation along the sternum (apparently internal), "might have been burning."

This was repeated several days, coming on in the middle of the forenoon and lasting until evening. In the evening he was generally free from it. An expectorant increased this sensation. After a few days his voice would break occasionally from the falsetto down to low bass notes. The burning seemed to be relieved and prevented by either a cold pack or hot water. On the first of July he consulted a surgeon, who alarmed him very much by telling him that he had an aneurism of one of the large vessels at the root of the neck. He had never had cough or dyspnoea. For a week or two after the voice was affected, he would also have some difficulty in swallowing water, from a few drops getting into the larynx. He had no trouble in swallowing solids, and the trouble in swallowing water was of very short duration. On physical examination I found the pulse 80, soft, the same in both radials, both by touch and with the sphygmograph. There was apparently a little fulness over the outer part of the upper border of the thyroid gland on the right side. There was nothing morbid in the chest, and no signs of aneurism anywhere. In the larynx, as before, I found paralysis of the right vocal cord, which stood pretty near the median line. There were no signs of inflammation in the larynx. On quiet respiration the right cartilage of Santorini stood in front of the line of the left. On phonation both cartilages of Santorini moved, but the right vocal process of the arytenoid did not. Six applications of the faradic current were made on successive days without any apparent effect on the paralyzed cord. The patient returned to his home in Maine, and employed the faradic current, both poles being applied externally, for three weeks. He also took two bottles of a compound syrup of hypophosphites, and then gave up all treatment. There

was no apparent improvement while using these remedies, but his voice afterward gradually returned to its normal condition. I saw him again on the 17th of March, 1874; his voice was then deep and resonant, and the larynx appeared well in every respect, the motion in the right cord being as perfect as in the left.

On the 1st of October, 1881, I saw this patient again. He reported that he had felt perfectly well, and that his voice had been natural till the middle of July, '81, when he had an attack of muscular rheumatism of the left shoulder and neck. He was also feverish and weak.

About August 7th he was feverish again, and had "neuralgia" in both arms, much more in the right.

On the 9th of August his voice again became high-pitched, and had since continued so. On examination I found a complete paralysis of the left vocal cord, no motion being detected even in the cartilage of Santorini on this side. He was advised to employ electricity, which he was able to do very satisfactorily for himself. He had also become quite proficient in autolaryngoscopy.

I saw him again in March, 1882; he reported that the motion in the affected cord and the voice had been gradually restored. Examination by me showed equally good motion in the two vocal cords.

TRANSACTIONS
OF THE
FOURTH ANNUAL MEETING
OF THE
AMERICAN LARYNGOLOGICAL ASSOCIATION,
HELD IN THE HALL OF THE MEDICAL LIBRARY ASSOCIATION, BOSTON,
JUNE 12, 13, AND 14, 1882.

Third day, morning session.

The discussion on "The utility or non-utility of local applications in chronic catarrhal laryngitis," was opened by John O. Roe, M.D., of Rochester, N. Y., as follows :

MR. PRESIDENT and FELLOWS of the *American Laryngological Association* :

I was not a little sorry, on being informed by our President the day before the programmes for this meeting were issued, that I had been appointed to open the discussion on "The utility or non-utility of local applications in chronic catarrhal laryngitis." And I was especially sorry because of lack of time at my disposal to give the subject sufficient preparatory thought.

The subject of the treatment of chronic catarrhal laryngitis is not a simple one, as a superficial consideration of the subject would lead one to suppose ; but, on the contrary, many points in its etiology should be considered, to arrive at an intelligent understanding of the nature of the disease in each particular case ; and many concomitant surrounding and contributing conditions usually require to be removed before the laryngeal affection can be successfully treated.

Those who believe chronic catarrhal laryngitis to be always a purely local affection, dependent on local causes, and independent of other complications, and that the method of local applications

into the larynx is the only form of treatment that is necessary to be considered, will be, in many cases, equally disappointed with those who believe it to be always a local manifestation of a general dyscrasia having a tendency to manifest itself in the larynx, and that for the removal of the laryngeal outbreak only general systemic remedies and measures are required.

When we consider the varied conditions under which the disease is manifested, and the numerous local surrounding conditions which influence and often induce it ; when we consider the influence which systemic taints, as syphilis and scrofula, have upon this affection, as well as all local diseases, we cannot say that this or that plan of treatment is the one to adopt in all cases, without taking into consideration those varied conditions with which the laryngeal affection is so commonly associated or complicated.

To lay down any definite rule of practice in the treatment of any disease, would subject us, and in justice too, to the imputation of being empirical in our practice, but there are general principles and plans which underlie the treatment of every disease which are generally found correct.

Thus, in the treatment of the disease under consideration, it will be found that local medication is the plan not only more generally successful than all others, when the various associated and contributing conditions are duly considered and treated therewith ; but it is almost always a necessary corollary to all general treatment of this disease, however much it may depend upon a constitutional cause ; for it is rare that the local manifestations in the larynx of a constitutional disease will entirely disappear under systemic medication alone without leaving traces of it behind to be excited again by local causes, if the first local outbreak is not entirely removed by proper local medication.

The disease with which chronic catarrhal laryngitis is most often associated, or by which it is most often induced, is chronic naso-pharyngeal catarrh. It is induced by it in several ways.

1st. By direct extension of the diseased surface from the naso-pharyngeal region to the larynx by direct continuity of tissue, and by the irritation produced by secretions dropping downward and finding their way into the larynx.

2d. By the laryngeal hyperæmia which diseases in the nares and naso-pharynx induce.

3d. By the irritation induced in the larynx by the mouth-breathing which is so often necessitated by the obstruction of the nostrils by diseased and hypertrophied tissue.

The marked and sometimes very intimate relations of the larynx with other organs, through nervous connection, are very frequently to be observed. The sympathy which exists between the ear and the larynx, as illustrated by the reflex irritation known as "ear-cough," is familiar to us all.

Cases of chronic laryngeal congestion or inflammation with marked hoarseness and violent paroxysms of cough, caused by foreign bodies or impacted cerumen in the external auditory canal, are not infrequently met with ; and this same irritation is sometimes caused by diseased teeth.

The sympathetic relations which exist between the nares and larynx is very frequently observed by laryngologists. Especial attention has been called to this fact by several members of this Association. The agency through which this irritation is reflected is the superior cervical ganglion of the sympathetic, which connects the fifth and pneumogastric nerves, and irritation of the terminal filaments of a branch of one of these nerves may excite a corresponding irritation in the terminal filaments of a branch of the other.

Thus, through this chain of nervous communication between the different organs, irritations in the nasal cavity, ear, or teeth, in the lungs or heart, in the liver, uterus, or other abdominal organs, are reflected to and excite irritation in the larynx.

The sympathetic connection between the uterus and the pharynx and larynx was first distinctly pointed out by Dr. Edgar Holden, in the *N. Y. Med. Journal*, April, 1877, p. 386 ; and since, by Dr. Cutter, in a paper before this Association, in 1879.

Affections of the heart are not an infrequent cause of affections of the larynx. This interdependence of affections of the two organs has been very clearly pointed out by Dr. Beverly Robinson, in his able paper before the Association at this session, on "Impaired cardiac power as an efficient cause of congestive throat affections." Diseases of the pulmonary structures and the pleura exert a similar influence on the larynx, often in a marked degree.

In addition to the sympathetic nervous connection between the nares and the larynx, we have the irritation induced in the larynx by the mouth-breathing when nasal respiration is cut off. The effect of mouth-breathing is always very marked, for when there is sufficient obstruction in the nasal cavity to necessitate breathing through the mouth for even a limited portion of the time, we rarely fail to find more or less laryngeal disease ; and, if allowed to

go uncared for, sooner or later, bronchial and alveolar catarrh is liable to supervene as a direct extension of the disease. This latter association, however, often occurs in an inverse order, as the result of chronic pneumonic phthisis. Chronic pharyngitis is also a very common result of mouth-breathing, as well as a frequent cause of laryngeal catarrh. It is rare that a chronic pharyngitis, particularly the hypertrophic and granular form, exists for any considerable length of time without inducing laryngeal catarrh.

This affection is also sometimes induced by the irritation produced by an elongated uvula or enlarged tonsils.

Prominent among the various constitutional diseases which not infrequently give rise to this affection are the exanthemata. How commonly do we meet cases of chronic laryngitis with marked hoarseness or aphonia dating back to an attack of measles, scarlet fever, or perhaps small-pox.

An attack of typhoid fever is not infrequently the cause of a laryngeal catarrh, and whooping-cough rarely fails to leave more or less laryngeal trouble behind it.

The exciting cause of this affection is often found in the habits and conditions of the patient.

The use of tobacco and spirituous liquors, exposure to damp and dusty atmosphere, lack of sufficient food, clothing, etc., play no insignificant part in its production.

To enter into the details of the treatment of chronic catarrhal laryngitis, both local and general, would be extending beyond the province of this discussion, which is to deal with the advisability of treating this disease by the application of remedies directly into the larynx. It is not intended, however, as I understand the question, to exclude the use of what judicious general medication may be clearly required to correct systemic conditions, or to be used in the treatment of the various systemic affections or diseases of other organs which, as I have shown, so often induce or aggravate this affection, nor is it to exclude the regulation of the habits and conditions of the patient.

In giving a direct answer to this question my experience leads me to reply most decidedly in the affirmative. I cannot, however, give this answer from personal experience in prolonged attempts at treating this laryngeal disease by general medication alone ; it is by comparing the results achieved by as thorough and judicious general medication as could well be given, which had been prescribed by others, and the results achieved by local medication

alone, or combined with other measures when necessary. Thus, cases which had not been improved at all by general medication alone have yielded a ready obedience to the application of medicaments topically applied into the larynx.

Dr. RUMBOLD said that in applying chronic catarrhal remedies to the throat he is in favor of the spray producer, which he had used for many years. He is very certain, from a study of the anatomy and pathology of the parts, that the use of the spray, which cleanses and applies the remedy at the same time, is much better than either the brush or the sponge.

Dr. FRENCH quite agreed with the writer that most inflammations of the larynx are due to catarrh in the nasal passages. It had been stated that in spraying the throat the solution does not get into the larynx. This is a mistake, for he had, by way of experiment, sprayed the larynx of a patient upon whom tracheotomy had been performed, with a fluid colored with indigo, and had afterward demonstrated the presence of the coloring matter in the trachea, as well as at the surface of the arytenoids and the vocal cords. This he had done frequently.

Dr. ROE, in conclusion, said that he disagreed with Dr. Rumbold as to the use of the spray in chronic laryngitis; the cotton-holder is much better in this condition; it is one of the few diseases which cannot be treated effectually with the spray.

PROCEEDINGS
OF THE
FIFTY-FIRST REGULAR MEETING
OF THE
NEW YORK LARYNGOLOGICAL SOCIETY,

HELD AT THE RESIDENCE OF DR. R. P. LINCOLN, NO. 20 WEST 31ST STREET,
FRIDAY EVENING, OCTOBER 31, 1882.

(Continued from last number.)

Remarks on excision of the tonsils, by Dr. MORELL MACKENZIE.

The doctor wished to make a few remarks on this subject in order to relieve the mind of the general profession of the dread of this operation ; its dangers had been greatly magnified. He thought it a very simple procedure. Removing the tonsils with the tonsillitome or bistoury is the only desirable method of getting rid of hypertrophy of the organ. Pastes of caustic, nitrate of silver, etc., were used, but unnecessary delay and pain resulted. Iodine, he thinks, enlarges the tonsil if continuously employed. Electricity was a poor substitute, and a tedious one. He advocated removing a part of the tonsil rather than the whole—what projected beyond the palatine arches. There were cases in which there was not much enlargement, but the follicles were frequently inflamed ; and abscission should be practised.

Methods of operating : The tonsillitome and bistoury were used. He prefers the tonsillitome because of the rapidity and ease with which it can be used. There were numerous instruments, all af-

ter the same design. He prefers to press the tonsil into the ring of the instrument by the thumb applied on the outside of the neck, and considers it exceedingly undesirable to use an instrument with prongs to draw out the tonsil automatically, as you may get more or less of the tonsil than desired. One need never fear hemorrhage after the operation. Daily operations, extending over a number of years, have convinced him that there was no danger. He had never seen serious hemorrhage. There were certain directions always given to the patient after the operation : 1. Don't allow patient to gargle. 2. Apply an astringent paste after the following formula :

R. Acid. tan., gr. cccxl. Acid. gal., gr. cxx. Aquæ, f. 3 i.

Let the patient swallow a drachm of it and get it into contact with the open vessels in that way.

Discussion.

Dr. LEFFERTS expressed his views as follows : That there existed two opinions in the profession in regard to tonsilotomy:

1. A number of physicians believed there was great danger of hemorrhage and of unpleasant sequelæ.

2. There were many who believed with Dr. Mackenzie that there was no danger, and that the operation was simple.

He thought Dr. Mackenzie's view was pernicious. There was a mean between the two opinions. He had never known a fatal hemorrhage after the use of the tonsillitome. Severe bleeding, producing great danger, had occurred frequently after abscission with the bistoury. In expert hands he thought the risk small, but there was sometimes danger.

He thought it unnecessary to invariably remove hypertrophied tonsils. In certain cases in children where the tonsils were enlarged but soft, and did not interfere with respiration, general treatment was sufficient to reduce them. In some cases he found the anterior faucial pillar adhere to the surface of the tonsil, and when this was cut, the small artery within it gave considerable hemorrhage.

Dr. A. H. SMITH had removed many tonsils and only seen severe bleeding in one case. He advocated removing them. Had seen a case of severe neuralgia of the angle of the jaw, caused by hypertrophy of the tonsil on that side. Its removal cured the neuralgia.

Dr. COHEN always used the bistoury when the patient was able to aid him. In nervous people and children he used the tonsillitome.

Dr. SCHAFER, of Brooklyn, had never seen any danger from hemorrhage, but he had always used the astringent recommended by Dr. Mackenzie.

Dr. DELAVAN related an instance in his practice where the removal of a tonsil in a child of seven was followed by most alarming and prostrating hemorrhage, which recurred several times. As swallowing induced bleeding, nourishment was given by enemata. There was a hemorrhagic diathesis. The child recovered.

Dr. JACOBI mentioned the fact that there were cases where, after frequent attacks of amygdalitis, lasting for years, the tonsils immediately shrank to a few shreds after each attack, and therefore neither the bistoury, tonsillitome, nor scissors could be used. What was to be done? He used a sharp spoon and scraped out all the shreds.

Dr. BOSWORTH answered the question by stating he used the wire snare successfully. He further stated that Allen recommended galvano-cautery.

Dr. MACKENZIE, in closing, said he used galvano-cautery in the cases mentioned by Dr. Jacobi, and reverted to the value of the astringent first mentioned in preventing hemorrhage.

Dr. F. H. BOSWORTH then read the last paper of the evening, on "Adenoma of the vault of the pharynx."

It is a common disease, classed among the conditions of nasal catarrh. The symptoms are interference with nasal respiration, nasal voice, and excess of secretion. In the vault is a group of glands banded together, resembling the tonsils in the throat, and subject to same alterations. This enlargement is not a tumor proper, but an hypertrophy of the lymph-tissue; consisting of lymph-follicles, connected by inter-follicular strings and blood-vessels. There is an occasional cyst. The fibrous tissue is not so highly developed as in the faucial tonsil. He exhibited a number of beautiful microscopical sections illustrating the normal and pathological structure; also several of the masses which he had removed.

The treatment was total extirpation, after which there was no return of the disease. Chemical agents were unsatisfactory, as were also the curette and galvano-cautery, which acted merely superficially. Meyer, of Copenhagen, had used cutting instruments, rasping, and cauterization, all of which were severely pain-

ful and unnecessary. He used a curved wire snare, with which he had removed forty or fifty successfully, rapidly, and with little discomfort to the patient.

When this condition was found in children he gave an anæsthetic, passed the straight snare through the nostrils, and adjusted the wire with the finger. He once removed with this snare a round-celled sarcoma during frequent sittings in his office.

Owing to the lateness of the hour, discussion was omitted.

Adjournment.

WM. F. DUNCAN,
Secretary.

REVIEWS AND BOOK NOTICES.

Der Pharynx als Sprach- und Schluckapparat. Eine Vergleichend-anatomische Studie von Dr. J. RÜCKERT, 1. Assistenten am anatomischen Institute zu München. Mit 6 Tafeln. München : Theodor Riedel, 1882, large 8vo, pp. 90.

The book before us contains the first two portions of a praiseworthy work based on Dr. J. Rückert's comparative-anatomical studies of the pharynx as an apparatus for speech and deglutition. The third portion is to concern itself mainly with the soft palate.

The subject has hitherto been very little investigated. Of course it is well enough known that of all animals only mammals possess a pharynx ; in all other vertebrates the air- and food-tracks cross each other within the oral cavity : the latter at once passing into the œsophagus. The human pharynx occupies a superior position, and a regular gradation can be traced in the structure and muscular relations of the pharynx in the different animals of the mammalian class, those of the anthropoid apes approaching distinctly to the human type. Thus the author recognizes in the morphology of the pharynx a further proof for the doctrine of evolution. The pharynx of man is considered a perfected organ, not only because it belongs to the highest species, but because its structure enables it to perform higher functions, and in this respect its qualities as resonating tube for the voice and for speech are especially dwelt upon.

There are sixteen chapters. The first is on the position of the larynx and hyoid bone relative to the skull, and the influence of this position upon the length and direction of the pharynx. In this, as in every other chapter, a large number of animals is compared on each point with man, thousands of sections having been made by the author, accurate measurements are given, tabular statements, etc., with many illustrations drawn by himself and litho-

graphed in Munich. For instance, he found, as Luschka has already stated, that the human larynx, and therefore also pharynx, reaches to the lower end of the sixth cervical vertebra; but in none of the other mammals did the lower border of the cricoid cartilage reach even to the fourth cervical vertebra. Its position was lowest in the quadrumana and *Erinæus*, viz., near the upper half of the third cervical vertebra; in *Cervus capreolus* it corresponded to the lower edge of the second; in *Sus domestica*, *Lepus timidus*, and *Lepus cuniculus* to the lower half of the second; in *Ovis aries*, *Bos taurus*, *Equus caballus*, *Canis familiaris* and *vulpes*, to the upper half of the second and the first; in *Felis domestica* and *Mustella furo* to the posterior end of the base of the skull; and, finally, in *Mustella foina*, *Lutra*, *Phoca*, and *Delphinus* it is still more forward; in the dolphin, f. i., the larynx is so attached to the cranium that one can easily determine how much of the posterior portion of the base of the skull reaches beyond it.

The second chapter discusses the dimensions of the posterior pharyngeal wall, and concludes that the greater expansion, both lengthwise and breadthwise of the portion above the larynx, is characteristic for the human pharynx. The third chapter takes up the shape and size of the soft palate, and among other interesting points, attention is, of course, called to the fact that no mammal possesses a uvula except man and a part of the quadrumana. The next two chapters are devoted to the palatoglossal and palato-pharyngeal folds respectively; and the sixth to the relation of the larynx to the velum. Here again there is traceable an approximation of the architecture of the pharynx of anthropoid apes to that of the human pharynx, for the young gorilla and the chimpanzee possess, like man, between the velum palati and posterior palatine arch, on the one hand, and the upper laryngeal aperture on the other, a space which communicates not only with the nasal cavity but also directly with the mouth; but this space is absent in all other animals, the velum and posterior palatine arch always extending to and surrounding either the epiglottis alone or the epiglottis as well as the arytenoid cartilages, the opening of the larynx thereby directly passing into that of the naso-pharynx. The closure between the pharyngo-nasal isthmus and larynx is not equally complete in all mammals, and in this respect again there is a regular gradation. In monkeys and prosimiæ the closure is very incomplete, and a simple opening of the jaws suffices to establish a communication between

the laryngeal and oral cavities ; the closure is more complete in the Carnivora, far more so in the Ungulata, notably in *Equus*, and still more so in the Cetacea. In the last chapter of the first part, the mode of division of the pharyngeal space is considered, and reasons assigned why the author, instead of following the ordinary division of the pharynx into naso-, oro-, and laryngo-pharynx, prefers to divide the pharynx into a respiratory and a digestive portion.

The second part concerns itself with the comparative myology of the pharynx. Its eight chapters are headed respectively the inferior constrictor, the middle constrictor, the superior constrictor, the relative size of the three pharyngeal constrictors, peculiarities in the structure of the transverse muscles of the human pharynx, the stylo-pharyngeus muscle, the pharyngo-palatinus muscle, and the analogy of the isthmus faucium with other portions of the alimentary tube.

Then there is added a chapter on "physiological concluding reflections." As the author explains in the preface, strictly speaking disquisitions relating to function are out of place in a work devoted only to comparative anatomy, but the author touches upon questions of the intensest interest, which have not hitherto been entered upon, and which certainly deserve the attention of physiologists and morphologists. As he points out in relation to anthropology they open a wide vista, for some peculiarities in cranial structure indicate that even in lower races of men the pharynx possesses characteristics of lower formation. Certain it is that in man alone, and in the animals nearest to him, can the laryngeal cavity be placed at will into free communication with either or both resonating spaces above it, the nasal and oral cavities ; and it is especially by communicating with the latter that the pharynx becomes the important adjuvant organ of voice and speech, which, in its perfection, constitutes the grandest characteristic of humanity.

Manuel Pratique de Laryngoscopie et de Laryngologie. Par le Dr. G. POYET, ancien interne des hôpitaux de Paris. Paris : Octave Doin, editeur, 1883, 1 vol., pp. 400.

This strikes us as a particularly good manual. It is of just the right size, and its topics are selected and treated with much discrimination. The directions for laryngoscopy are good, and the different methods of illumination and forms of mirrors are well described, the preference of the author, as with most Frenchmen,

being for direct illumination and quadrangular mirrors. Solidity is considered the first quality of an instrument intended to be introduced into the larynx. In chronic catarrhal laryngitis steam atomizers and vaporizers are recommended, but none of the simpler atomizers for cold spray, much used in this country. For topical applications to the larynx the author prefers the sponge. In the treatment of polyps Dr. Poyet uses the lateral forceps of Fauvel almost exclusively ; he has never used tube-forceps, and cannot appreciate their value. He condemns the use of scissors and knives in operations on growths, as he does not believe they can be used with safety. In the treatment of chronic catarrhal conditions much attention is given to constitutional and diathetic indications. Lupus is described as a scrofulide of the larynx ; and besides the general treatment indicated, the author recommends locally scraping and scarification, which, in two cases, gave him unhopèd-for results.

The most noticeable deficiency in the book is the want of knowledge of foreign literature, as, for instance, in describing Tobold's laryngoscope as a tube which contains a globe filled with water for concentrating the rays of light, etc. ; and in attributing Schrötter's method of dilating stricture of the larynx to Stoerk ; and in representing the bougie in this method as held in place by the pressure of the vocal cords, instead of being fastened into the tracheal canula, as it is. There are thirty-five plates in the text, and twenty-four chromo-lithographs at the end of the book—the latter showing good drawing and as good coloring as we usually expect to find.

Ueber die Behandlung der Diphteritis des Rachens.
 Von Dr. G. MAYER, Geheim. Sanitätsrath in Aachen. Aachen: J. A. Mayer, 1883.

Dr. George Mayer, of Aix-la-Chapelle, one of the most prominent physicians of Germany, has the firm conviction that a very simple treatment of pharyngeal diphtheria, which he has been practising for about ten years, and has several times previously brought to public notice, can save many patients who, with other modes of treatment, die. As to his own experience, he had had, in 1874, when he first published his method, sixty cases, some of them very severe, with only one death, and that in a boy who, when he came under his care, had already beginning laryngeal diphtheria ; since then he has had many hundreds of cases without a fatal issue, although statistics show that in Aix-la-Chapelle

there is altogether a not inconsiderable mortality from diphtheria.

The most important part of his method is the persevering (for at least twice twenty-four hours, some times during five or six, or still more, days and nights) internal and external application of ice; externally by means of ice-bags; internally by merely continual giving of ice-water, to which, if necessary, may be added a little raspberry juice, red-wine, and sugar, or the like, and small pieces of ice. To this he adds, hourly, half a tablespoonful of a solution of chlorate of potash, viz.: for children under six years, 1:40; *i. e.*, \mathbb{R} potassæ. chlorat., 6; aq. destill., 215; syr. rubi. idæi, 25; for children from six to twelve years, 1:30; and for older children and adults, often 1:25 (many children and adults without syrup, or if swallowing is painful, with gum acaciæ or the like). He shows how the large dilution and much drinking favors rapid elimination of the salt and prevents toxic effects. Only in few cases has he found it necessary to reduce high temperature by cooling baths, and he advises such baths not to be too cool; when there is diarrhœa he gives a few drops of tinct. opii. The diet must be according to the febrile condition, but not too stinted; he recommends meat-soup, milk, cocoa, mucilaginous drinks, and wine according to circumstances. The value of this method he sees in the early, energetic, and exclusive application of these simple and well-known means.

Contributions laryngologiques. Par le Dr. PAUL KOCH. Bulletin de la Société des Sciences Médicales du Grand-Duché de Luxembourg, 1882.

More than one-third of the whole volume before us is taken up by the laryngological contributions of our collaborator, Dr. Koch. His articles on laryngo-typhus, on ignipuncture, and on the mechanical treatment of laryngeal stenoses have been previously published, but a number of others appear now for the first time. There are three essays on laryngeal paralysis, especially paralysis of the posterior crico-arytenoid muscles of infancy and adult life, which are very thorough and instructive. Among other interesting points the author shows from anatomical considerations, reports of experiments on young and old animals, and by clinical experience, how, on account of the development of the intercartilaginous rima glottidis which takes place at puberty, laryngeal paralysis, producing the cadaveric position of the vocal bands, while hardly interfering except on bodily exertion with respiration in adults, leads in infants to fatal dyspnœa.

Dr. Koch also relates the case of a boy, sixteen years old, who, while passing hay to a loft, received a wound from a pitchfork, which entered through the thyro-cricoid membrane and passed through the posterior-wall of the larynx and anterior wall of the œsophagus. Fortunately the prongs were so sharp as to produce but little contusion, and so clean that no foreign matter entered the wound. The only treatment pursued was swallowing small pieces of ice, and in the course of a week the patient had recovered completely.

Next, a case of laryngeal cancer is related. That a benign tumor in the larynx ever degenerates into a carcinomatous growth is doubted. The patient was a large and robust man, a carpenter by trade, æt. fifty-four years, with a good family and personal history, who dated the beginning of his affection to April, 1879, when he first felt pain in the region of the larynx, hoarseness, and dysphagia. When first seen by Dr. Koch, three months later, the cervical glands were already largely swollen, and the diagnosis was unmistakable. It was what Krishaber calls extrinsic laryngeal cancer, *i. e.*, that form involving the posterior laryngeal wall and the œsophagus. There was not the least dyspnœa, although the posterior insertions of the vocal bands were already affected. Gradually the pain and hoarseness became worse until there was aphonia and an irritating cough. Dysphagia increased, expectoration at first catarrhal became purulent and bloody, and hemorrhages occurred; in October dyspnœa commenced, and so rapidly increased that laryngo-tracheotomy had to be performed November 1st. Although at the time of the publication the patient was living, he was gradually sinking.

Finally, a case of cystic goitre is reported in a woman who, at the same time, was epileptic. The tumor, involving the left lobe of the thyroid body, had existed from childhood and grown very slowly. The patient had never suffered from dyspnœa. She had a guttural voice, which, however, was otherwise normal. Her deglutition had always been normal, until at the end when it became more and more difficult from compression of the œsophagus, until swallowing became impossible, and the woman died of inanition at the age of seventy-one years.

QUARTERLY REPORT OF LARYNGOLOGICAL LITERATURE.

By GEORGE M. LEFFERTS, M.D.

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THE FIRST INTERNATIONAL CONGRESS OF LARYNGOLOGY
TO PROFESSOR LABUS.

At the suggestion of Prof. Massei, of Naples, the members of the Laryngological Congress that met in Milan in 1880, just before separating, unanimously decided to present to our collaborator, Dr. Labus, the originator and President of that memorable convention, their portraits as a personal memento which should ever remind him of the success and the grateful appreciation of his undertaking to bring together for the first time the laryngologists of the world. Mr. Lennox Browne, of London, kindly undertook to arrange an album, and toward the end of last year the presentation took place. We learn that the elegantly bound album contains thirty-two imperial photographs, each surrounded with an artistically executed gold wreath, and under each portrait the autograph, and above, stamped in gold, the name and country.

The title-page bears the following inscription in illuminated letters :

A CARLO LABUS, PRESIDENTE.

SETTEMBRE, 1880, MILANO.

Above is a water-color representing Bellagio, on Lake Como, where the members of the Congress had been entertained by the municipality of Milan with a grand banquet ; on each side the design is gracefully carried down in *arabesques* to the lower portion of the page, which contains two small *vignettes* and flowers. This painting is the work of Mr. Lennox Browne, who is as excellent an artist as laryngologist, and the painstaking care and attention to detail that it displays, shows it to have been a sincere labor of love. It gives us great satisfaction to record that the intention of the members of the Congress, of which we cherish the pleasantest recollections, has been so worthily carried out.

THE POSITION OF LARYNGOLOGY AT THE NEXT INTERNATIONAL MEDICAL CONGRESS.

It is officially announced that the next International Medical Congress will take place in Copenhagen, in August, 1884. Details will be published hereafter. We earnestly impress upon those who have the matter in charge the justice and the good policy to accord to the specialty of laryngology, which was made a subsection instead of a section in the Congress held in London in 1881, the position given to other specialties ; in every point of view it is as worthy and as important as any, and has proved itself so in London.

ARCHIVES OF LARYNGOLOGY.

ON A HITHERTO UNDESCRIBED MALFORMATION OF THE NASO-PHARYNX.*

By JOHN N. MACKENZIE, M.D.,

OF BALTIMORE.

THAT malformations of the naso-pharynx are of rare occurrence is the inference which follows from their cursory mention in works on teratology, and the infrequency with which isolated cases are encountered in periodical medical literature. If we consider, however, the complex process involved in the embryological evolution of this region; if we reflect that many of its deformities, indirectly removed from sight, may be compatible with the perfect comfort of their possessor, and therefore come only accidentally under medical observation; and if we bear in mind the notable infrequency with which the naso-pharyngeal cavity is examined after death, it is quite possible that departures from its normal structure may be more common than is generally supposed.

In that wonderful book,¹ of which it has been said, that it is as full of variety as nature herself, Pliny the Elder tells us that children born in the seventh month frequently have the ear and nose imperforate. Whether the observation of the great natural historian be correct or not, it is quite certain that occlusion of the posterior nares is the most common of congenital naso-pharyngeal anomalies. The occlusion may affect one or both nostrils;² may be membranous or

* Read Feb. 16, 1883, at the Clinical Society of Maryland.

¹ "Nat. Hist.," lib. xi, cap. 59.

² Vicq d' Azyr (*Mém. de la soc. de méd.*, 1776, p. 315; Otto, "Handb. d. path. Anat.," Breslau, 1814, S. 201). Roederer (quoted by Meckel, "Handb. d. path. Anat.," Leipzig, 1812, i, S. 406). Plancus (*Mém. de Berlin*, 1761, p. 73). Otto (*op. cit.*). Cohen ("Dis. of Throat," etc., 1879, p. 305). Luschka ("Der

bony.¹ The orifices of the posterior nares may be alone implicated, or the nasal fossæ may be obliterated in their entirety.² Obliteration of the choanæ occurs when the nose is absent, as in cyclopidian monsters,³ or rudimentary;⁴ or it may constitute the sole aberration from the normal in the individual. This malformation, when congenital, seems to be incompatible with the independent life of the foetus.⁵ Fusion of the choanæ into one is occasionally observed associated with absence of the vomer.⁶ The position of the posterior edge of the vomer is, according to most anatomists, always median and perpendicular, deflection in this situation being probably exceedingly rare.⁷

Very rarely it is divided vertically into two halves, as in the cases recorded by Lefferts⁸ and Schrötter,⁹ and Harrison Allen¹⁰ refers to a specimen in the Wistar and Horner Museum in Philadelphia, where the vomer was strengthened on either side by a delicate bony process from the palate bones. Finally, the capacity of the naso-pharynx varies greatly in different individuals, especially in its antero-posterior diameter, which is often notably diminished, and Lennox Browne¹¹ asserts that occlusion of the nostrils may result from angular curvature forward of the upper cervical vertebra. I have seen several cases of marked lateral deviation of the posterior wall.

Schlundkopf des Menschen," Tübingen, 1868, S. 27). Fraenkel (*Ziemssen's Cyclop.*, Am. ed., vol. iv, p. 113). Betts (quoted by Cohen). Emmart (quoted by Luschka). Voltolini ("Die Anwendung d. Galvanocaust," Wien, 1870, pp. 243-262), *et al.*

¹ Oberteufer (in Stark's neuem *Archiv.*, ii, St. iv, S. 640; Otto, *l. c.*). Littré (*Mém. de l'acad. des sc.*, 1701, p. 120).

² Rohowsky, "De choanarum obliteratione." (Meckel, Otto.)

³ Vrolik, Scemmering (Paget, *Todd's Cyclop.*, Art. Nose), Borrechiuss, Plouquet (Otto, *l. c.*).

⁴ Maigrot (*Roux Jour. de méd.* t. 15, p. 142, Meckel). Roloff ("De Monstris," Venet., 1749, Meckel).

⁵ Ronaldson, *Edinburgh Medical Journal*, May, 1881, p. 1035.

⁶ Roloff (*l. c.*). Roederer (*l. c.*). Fernet (*Bull. de la soc. anat.*, 1864, p. 130). Blandin, "Anat. topograph.," p. 74.

⁷ Welcker, however, found asymmetry of the choanæ thirteen times in thirty-seven cases. (*Ziem. Monatsschrift f. Ohrenheilkunde*, Feb., 1883, p. 23.)

⁸ *Phila. Med. News*, Jan. 7, 1882, p. 12.

⁹ *Laryngologische Mittheilungen*, Wien, 1875 (Lefferts, *l. c.*).

¹⁰ *American Jour. Med. Sc.*, Jan., 1880, p. 72.

¹¹ *British Med. Jour.*, 1878, vol. ii, p. 282.

The following case cannot be referred to any of the above-described anomalies, and may be considered as the representative of a hitherto unrecognized malformation of the naso-pharynx:

Miss E., æt. fourteen, a robust, well-formed child, was brought to me in Feb., 1882, from one of the adjoining counties, on account of a nasal discharge of some years' duration, which had become a source of great annoyance, not only to herself, but to those by whom she was immediately surrounded. The story of her case was the familiar narrative of naso-pharyngeal catarrh: progressive nasal obstruction followed by buccal respiration with its common heritage of pharyngo-laryngeal hyperæmia, irritative cough, catarrhal otitis media, and spasmodic asthma. This train of events I found to be dependent on a mass of so-called adenoid or papillary vegetations which occupied the naso-pharynx and precluded respiration through the nose. Owing to the fright of the child and her consequent intractability, the examination of the post-nasal region was made in the first instance with the finger. The first object which it encountered in its passage behind and above the soft palate was a thin, sharp ridge, extending from before backward, which proved on further investigation to be the inferior border of a bony partition which separated the naso-pharynx into two lateral halves. The septum consisted of a thin lamella communicating to the touch the sensation of bone, continuous anteriorly with the posterior edge of the vomer, and inserted posteriorly into the posterior superior pharyngeal wall. Superiorly, it became fused with the pharyngeal vault. The septum narium was slightly deflected to the left from before backward; the bony lamella had a similar inclination, and seemed to be, in fact, a prolongation backward of the vomer. Its inferior edge was more or less sharp, clearly defined, and curved from before backward and upward, presenting a very marked resemblance to the normal posterior curve of the nasal septum in the skeleton. Its insertion into the pharyngeal wall was on a higher plane than that of its origin, which corresponded with the inferior edge of the septum. Attempts were made to dislocate it, but without success.

Although both naso-pharyngeal spaces were filled with growths, none sprang from their dividing septum, which, in its entire length, was free from irregularities of any kind.

The growths were removed in several sittings with the forceps and curette, the after-treatment consisting in the use of a simple

detergent spray followed by one of alcohol and water. With the ablation of the growths came an immediate amelioration of the patient's condition and a rapid disappearance of its complications. A rhinoscopic examination made several days after the operation confirmed the diagnosis to which the previous digital exploration had led. The partition was then seen to be covered by apparently normal, though congested, mucous membrane continuous with that lining the nasal passages and pharynx. The mucous membrane covering the turbinated structures was also congested, but otherwise its condition was normal. Apart from the bony wall, nothing abnormal was detected in either naso-pharyngeal compartment.

As the result of an examination of a number of crania suggested by the above anomaly,¹ I would like to call special attention to the varying degrees of obliquity which the plane of the posterior nares bears to the horizontal—in some instances the angle is so small that they look almost directly downward. This inclination of the choanæ involves a corresponding obliquity in the posterior edge of the vomer, and coincides with an abnormal inclination of the pterygoid processes and body of the sphenoid bone. Herein, too, lies the anatomical explanation of the variations in the angle which it is often necessary to give to the rhinoscopic mirror before the image of the nares appears in the glass.

In the production of the above malformation three factors were doubtless concerned: (1) a more or less pronounced obliquity downward and backward of the body of the sphenoid bone and basilar process of the occipital; (2) abnormal curvature backward of the vomer, associated with marked obliquity of the posterior orifices of the nasal fossæ; and, possibly, (3) an unusual height of the bony palate.

The deflection of the septum as a whole is a feature of additional interest in the case, as well as the possible relation of the deformity to pathological processes, and its influence on the manipulation of instruments in the naso-pharyngeal space.

¹ The skulls examined were mainly from the anatomical museum of the University of Maryland, and were placed at my disposal through the courtesy of my friend, Prof. Michael.

NEW FACTS IN LARYNGOLOGY.*

By GEORGE M. LEFFERTS, M.D.,

NEW YORK.

IT is with much hesitation that I venture, in the presence of this audience of experts, to assert that there can be any new, or even fresh, facts in laryngology; but the cases to which I shall, for a few moments, ask your attention, and the subject which, I believe, they illustrate, being to *me* new, I have ventured to hope that it might be so likewise to you, and therefore of general interest. In no event can it be regarded as time-worn. If I am right in my diagnosis, the cases belong to a class of affection which has but comparatively recently been recognized, little written about, and hardly as yet fully understood; it is, therefore, worthy of our earnest attention, and I trust in bringing it before you for the first time, that a discussion may be provoked which will, in a measure at least, dispel the cloud of obscurity which now envelops it. If this be the case, my purpose will have been accomplished, and the existence of what I may fairly, perhaps, claim to be new facts in laryngeal pathology, established.

A gentleman, young, strong, and free—as I have assured myself by careful physical examination—from any abnormality of either heart, lungs, or kidney, is sitting at his dinner-table, surrounded by friends; suddenly he has a slight attack of spasmodic cough, and a second later falls from his chair to the floor, unconscious. Almost imme-

* A paper read at the Fifth Annual Congress of the American Laryngological Association.

diately he arises, resumes his seat and the conversation at the point where it was interrupted.

Is there any relation between so slight a cause as this cough, and so grave a result as the unconscious fall?

This is not the first attack of this character that my patient has had ; several have occurred during the past eight years, and with much greater frequency ; so frequent, in fact, that he has retained no recollection of the number ; attacks of partial unconsciousness, always preceded by the same paroxysmal attack of coughing, have occurred. They last but a few seconds, are preceded by a blurring of vision, with dizziness or vertigo, and pass away instantly, leaving him clear-headed and bright.

I have said that he is a young and strong man, free from organic lesion. He has an incomplete history of hereditary neurosis. There is no evidence of any convulsive movements during his attack ; these latter are always ushered in by the tickling in the larynx and violent cough ; the face becomes suffused. In the worst, he falls without cry, but rises almost immediately, without confusion of ideas, and without remembrance of what has occurred during his brief unconscious interval. In the lighter attacks, the premonitory cough is often followed by a few stridulous inspirations and a slight feeling of suffocation ; then vertigo and momentary unconsciousness, or, it may be, slight cough alone, with some spasm of the larynx, slight dizziness, but no unconsciousness.

An examination of his larynx shows that, aside from a slight hyperæmia, the appearances are normal ; the pharynx is granular ; uvula is not elongated.

Such is the history. Are you ready with a diagnosis? I was not when I first saw the case.

A second instance, of the same affection, I have seen ; and the two constitute my experience of it ; two only, and these after a number of years' exclusive practice.

It likewise concerns a young, strong man, and his history would be but a repetition of the first that I have detailed to you ; with the exception that his attacks are not so severe, he has had but two unconscious falls, and he does not

live in dread of sudden accident in the street or elsewhere; He has no history of other neurosis. A sister is decidedly neurotic. The history of his affection dates back one year only.

To those of you who have followed journalistic literature of late, I need not name the affection; you will have recognized my imperfect description of its main features, as exemplified in my cases. The "Laryngeal Vertigo" of Charcot is readily diagnosed, perhaps, provided the given case present the symptoms that I have detailed, and you are aware of the existence of such a disease. Nothing within the range of our specialty can, I believe, be easily confounded with its peculiar manifestations. But the thought suggests itself to me, are these always typical? Will it not be easy to misconstrue other conditions, which will suggest themselves to you, and confound them with this rare disease? Upon this point certainly we need observation and study. Can you, gentlemen, add anything of value to the question of diagnosis?

Rare the affection is,¹ since Sommerbrodt, in 1876, gave us the account of a case of recurrent loss of consciousness attended by convulsions, which seemed to be due to the presence of an intra-laryngeal tumor; and Charcot, in the same year, detailed to the Société de Biologie two cases, together with the results of his investigations as to their etiology. Few have been added to the list, namely: Gasquet, one in 1878; and Charcot, two more again in 1879. To these I add one by Grey, one by Krishaber, and the sum total amounts to but eight published instances; ten, if I include my own cases.

We may well be pardoned, then, if we are not, as yet, familiar with the disease; but our very unfamiliarity enhances to us its interest.

One word in regard to etiology, in so far as we, to-day, understand it, and I have finished—and it is to this part of the subject that I would ask your special consideration. Charcot holds, that the origin of the curious symptoms incident to the affection lies in a peculiar irritation of the

¹ See Krishaber: *Annales de l'oreille et du larynx*, tome viii, p. 12, 1882.

centripetal laryngeal nerves; that the "laryngeal vertigo" is, in many respects, to be compared with the vertigo met with in "Menière's disease." The accuracy of this comparison is questioned by Grey, in his valuable brochure, to which I am indebted for much information, and whose views I quote, as I believe them to be correct. He holds that the two affections named are in many respects unlike; notably, because in the latter there is generally *only* vertigo, not unconsciousness; in the former, both. He also discards the older term "laryngeal vertigo," and substitutes that of "laryngeal epilepsy," admitting at the same time that the affection differs radically from typical epilepsy, in the important particular of being readily amenable to treatment (the bromides), but believing that the term "vertigo" is a misnomer, for in all of the cases thus far reported consciousness was entirely lost at times, and in many there were convulsive movements. The word epilepsy, then, used in the more catholic sense of implying all sudden actions of nerve-cells, describes the phenomena better than any other.

Is this disease, then, truly a form of epilepsy? To this point, secondly, I would direct the discussion.

To substantiate Grey's view, it should, as he himself says, be proven that the phenomena do not occur except in persons who are either personally or hereditarily epileptic or neurotic. An analysis of the cases thus far known would seem to give an affirmative reply and show that they do not, but the rule is certainly not an invariable one. Our experience is as yet, however, too limited to definitely decide the matter.

Féréol and Jean have shown, in their study of the laryngeal symptoms of locomotor ataxia, that an organic irritation of the laryngeal nerves may cause violent and spasmodic cough. The picture that they draw is a graphic one; but such cases are not necessarily accompanied by loss of consciousness.

Why, asks Grey, was it that these long-standing organic lesions, evoking much more violent spasms of laryngeal muscles than in the instances of the so-called "laryngeal

vertigo," did not induce loss of consciousness or convulsive movements?

The temptation is great to assume that it was for want of pre-disposition; and this view seems more probable when it is remembered that an excessive degree of direct violence to a nerve is required in order to produce unconsciousness.

Have I not said enough concerning this rare and curious affection to show, first, what a field for speculation, thought, and investigation lies practically uncultivated before us; and, second, should not this thought stimulate us to undertake the task?

I commend it to you, with confidence.

A COMMON FORM OF VOCAL DISABILITY RESULT-
ING FROM PATHOLOGICAL PROCESSES. THE
PHENOMENA USED TO DEMONSTRATE THE
FALSITY OF ONE SYSTEM OF VOICE-TRAINING.

By S. W. LANGMAID, M.D.,

BOSTON.

I HAVE been frequently consulted by actors and singers with regard to an affection of the throat, the nature and cause of which they could not understand; the effect being, however, quite apparent in the resulting vocal disability.

This disability consists in an inability to sing above a certain note of the scale, or, in the case of actors, in the sudden break of the voice at a certain point in the upward inflection.

Usually, the voice, although somewhat altered in quality, is good enough in the conversational register, but above this, at some particular note, no effort is sufficient to make any thing but a feeble sound of the poorest falsetto quality.

The interesting feature for us in these cases is the fact that, the kind of voice being known, the history of the case and the laryngoscopic examination enable one to say at exactly what note the voice will fail, and through what portion of the scale it is possible to use it. This knowledge may be of consequence, inasmuch as a modification of the music to be sung, or a change in inflection in recitation, may sometimes enable the singer or actor to "get through" single performances, if not with credit to himself, with safety to his manager. It will also be of service

to the patient if the nature of the disease is explained, because, in the absence of pain or soreness of throat and of any other symptom, a tendency to weakness of voice at a certain place where it is always strong, may warn him to desist from any use of the voice until the disability is removed.

The cause of this affection (I am speaking of skilful actors and singers) is, in most cases, fatigue of the vocal organ by unusual efforts. It may result from too long continued or too forcible use of the voice, with or without some added catarrhal inflammation of the mucous membrane. It not unfrequently results from the sudden resumption of public singing or acting after more or less protracted disuse of the voice, and ordinarily it is the best artists who are the subjects of the affection, because greater efforts are demanded from them than from others. Again, it is the affection peculiar to the most powerful vocal organ; to the voice capable of producing heroic effects. So it is the tragedian or singer of grand opera who is likely to suffer, rather than the comedian or singer of operetta.

As I have said, the history of the case almost always reveals the cause to be unusual vocal effort, or, it may be, that only the ordinary use of the voice has been demanded during great physical prostration or general fatigue of the body.

It may be gradual in its onset, or, as I have known it in two instances, instantaneous in the midst of a performance.

The laryngoscopic appearances are either of slight injection of one or both vocal cords, or none at all. But the position of the cords is that of relaxation, when the note upon which the break occurs is attempted. The glottis fissure may be simply elliptical, or, as more generally occurs, open throughout its whole extent, the vocal processes receding more or less from each other.

The laryngoscopic image need not be further described, because it is the already well-known one of vocal fatigue.

The paresis is of the sphincter muscles of the glottis, including the tensors of the cords.

Both the position of the cords and the muscular affections which produce it are clearly described in the admirable work of our esteemed colleague, Dr. Cohen.

The only fact to which I desire to call attention is, that in typical cases, unassociated with any but the slightest injection of the mucous membrane covering the cords, nothing unusual is noticed when the patient is made to sing successively the notes of the scale from below upward until a certain note is reached, and then the change in the position of the cords is well marked, and differs from that which was to be expected. Instead of the progressive closure of the glottis, especially of its posterior portion, a sudden relaxation is seen to take place, the cords receding, the vibrations appearing to be slight, and the resulting tone being without resonance and of falsetto quality. The patient confesses to a sensation of relaxation of vocal tension, and realizes his disease to be what the Italians designate as "*abbassamente di voce*," the lowering of the voice.

The degree of the scale upon which this takes place is in soprano and tenor voices, the ninth of the scale in the key of C, or within the limits of a tone above or below that note. In very high voices it may occur somewhat higher. In contralto and bass voices it occurs at the seventh of the scale. Now this happens to be the precise place in the scale at which the so-called change of register occurs in the normal voice.

Almost all treatises on singing recognize the fact that at a certain note of the scale a change takes place in the method of producing the tone. The so-called break in the voice may in some cases present an almost insuperable barrier to further production of tone, or it may be so slight as not to be recognized by the singer; yet the trained ear will always detect a slight change in the quality of the tone resulting from changes in position of the larynx, in cord tension, and resonance.

As most vocal teachers and treatises on the use of the voice recognize this change, so do they attempt to point out the means of overcoming it when it proves to be an obstacle to the necessary homogeneousness of the singer's scale.

It is not within the scope of this paper to point out the various directions which have been given to overcome this break in the voice. We have to deal with one kind of teaching, the results of which are pathological conditions of the larynx.

I am occasionally consulted by students of vocal music who—soprano, tenor, or bass—find after months or years of study that the voice has become weaker rather than stronger, and that attempts to sing are not only unsatisfactory in an artistic sense but extremely wearisome also.

The teacher complains that the pupil does not make progress, and that the tone has acquired the quality which is termed breathy, and the teacher and pupil becoming discouraged seek for an explanation in the possible existence of some disease of the vocal organs; and not without reason, for a laryngological examination reveals almost the precise condition spoken of above, which it has been said is the result of laryngeal fatigue. Now it will be found that from some preconceived theory, the result frequently of misconception of what has been written about the right way of "forming the voice," or through ignorance of any method by which a new series of tones can be formed resembling those which the pupil has already at command, an expedient has been adopted which, from the apparent relief which it affords to the throat, has been gratefully accepted by the pupil and hopefully practised.

This method consists in the substitution of the falsetto production at these notes of the scale of which I have spoken, viz: at the ninth for high voices, and the seventh for low ones.

It may be remarked here, that the skilled singer is always sensible of an increase of tension of the laryngeal muscles as the scale is sung upward, but this sensation is a grateful one, and is not attended with the feeling that the organ is being strained unduly, because the compensating necessary changes in laryngeal position and in reflection of tone help to establish a kind of tensive equilibrium.

To give to the pupil who needs it just such a production is one of the functions of the voice-trainer, but, as I

have said, the specious error of relaxing tension is the pitfall into which teacher and pupil fall, and the result is as stated above. It should be said that the wrong nomenclature which is used in many treatises on singing, even in those which have the sanction of great artists, is largely responsible for the error, since the term falsetto is used to designate the changed production which it has been said is inevitable at certain notes.

I purposely avoid making any remarks upon the right use of the falsetto voice. I simply say that when used in the place of the proper laryngeal tone the results are disappointing, and may be disastrous.

I am not aware that this disease of the larynx has ever been spoken of as the result of a school of singing, or that the falsity of this kind of voice-production has been demonstrated by the resulting disability of the vocal organ.

The results of such teaching, viz., the resort to the falsetto production at a degree of the scale where sudden changes in tension and reflection of tone are normally called for, so far as examination of the larynx reveals them, are identical with the pathological phenomena caused by fatigue of the vocal muscles from strain of the voice.

The treatment of this condition of paresis of the vocal muscles belongs in part to laryngologists, but mostly to the teacher. The explanation of the pathological condition suggests the remedies both to the physician and teacher.

That the strength of the voice may be restored, and the paresis of the vocal muscles removed, I have reason to know from experiments which I have made with both male and female voices, which had been rendered useless by the wrong method of use. These experiments being undertaken principally for the purpose of proving the theory which was used to account for the laryngeal phenomena.

DESTRUCTION OF NASAL POLYPI BY CHROMIC ACID.

By F. DONALDSON, M.D.,

BALTIMORE.

THE points to be aimed at in the surgical treatment of the several varieties of nasal polypi, are, their prompt and rapid removal, with as little pain and as small loss of blood as possible, and in a manner to prevent their recurrence.

Each of the three methods ordinarily resorted to—*evulsion*, *abscission*, and *electric cautery*—has its advocates. They all have their advantages, while, undeniably, each has its disadvantages and its inconveniences.

Let us briefly refer to some of these.

The use of the forceps, the oldest and, among general surgeons, the method still generally employed, is attended with great pain, considerable loss of blood, and often with laceration of the contiguous structures. Owing to the quantity of mucin in the meshes of the myxomata, the first effort at evulsion generally produces free discharge of the fluid, with tearing of the polype. Subsequent attempts remove the walls of the sac with its pedicle composed of connective tissue with the epithelial coverings. Often, repeated efforts are made by torsion with slender, tapering-bladed forceps to remove the ends and points of attachment. If care be taken to sever the pedicle as near as possible to its insertion, this mode of removing polypi is very effective. It is sometimes a matter of difficulty entirely to remove, amid the flow of blood, all traces

of the so-called roots in the upper and middle turbinated bones. There is no mode of producing complete local anæsthesia, so far as to prevent the exquisite pain resulting from the operation. We can, however, deaden somewhat the sensibility by using a spray of ice-water containing salt. The advantages of the removal of these neoplasms by evulsion are its effectiveness, the comparatively short time consumed in the operation, and the frequent non-recurrence of the growth.

Abscission—destruction by simple cutting instruments and forceps containing sharp blades—is seldom attempted. This mode of operation must be supplemented by the use of tearing forceps or the galvanic cautery. Dr. Morell Mackenzie states that he has settled down, generally, to the use of his punch-forceps, resorting afterward to the electric cautery to the base of the growths.

Specialists, now, are more partial to the use of the *snare écraseur*, of the kind proposed by Wilde for the ear, Blake, Jarvis, and Türck. This method of removing nasal polypi is efficient and easily applied, especially when we resort to Dr. Jarvis' finest instruments as modified in shape by Dr. Bosworth.¹ The use of these is attended with much less pain, and when the screw is slowly worked, with but slight loss of blood. If the cold wire can be attached high up the pedicle, the polype can often be readily removed. It is, however, no easy matter with a snare to get hold of the insertions of the polype, hidden away as it often is, no matter how brightly we may illuminate the nares. Our purpose is not only to get the growth safely away, but, if possible, to prevent its return. In our experience, if the snare only is resorted to, the growth very frequently returns.

In cases of frequent recurrence of the polypi, if the growths spring from one of the turbinated bones, Fergusson, Prof. Gross, and Dr. Morell Mackenzie advocate the removal of a portion of the bone. Dr. Mackenzie has a special instrument for this purpose—a fine hollow forceps

¹ Dr. Bosworth had but one recurrence in thirty-five cases treated by the wire *écraseur*.

having toothed edges on one side and smooth edges on the other, whilst between the two, a sharp cutting blade which can be rammed down. With this he easily accomplishes the removal of the portion of the bone affected. Some polypi, from their anatomical situation, can not be removed, he believes, without this operation.

Dr. Mackenzie's view, that no evil results from the removal of pieces of turbinated bones, is now, we think, amply confirmed by other observers.

Of late, some operators resort frequently to the use of the *electric cautery*, either with wire loops, or with bulb-pointed electrodes. There is less hemorrhage by this method, but if a hot wire be used to remove the points of attachment, the operation is painful. It divides well the point where the wire is drawn around the growth, but we can not, thus easily, remove the insertions. We must burn them out, and in doing so, it is difficult to avoid injuring more of the membrane than we could wish. Even in the hands of the most skilful it often gives rise to local inflammation and does harm.

Different caustics have often been used for the destruction of nasal polypi. Nitric acid, Roman paste, Vienna paste, acetic acid, and others have been tried. They were found to destroy the polypi, in part, but they have been abandoned because, with the neoplasms, they injured the adjacent structures. Their destructive properties were not limited to the growth. Glacial acetic acid, when injected into the polypi, destroys them, but if it touches the mucous membranes, an accident very difficult to avoid, it inflames them, causes great pain, and destroys the healthy structures. If we promptly spray the parts with alkaline solutions, we easily neutralize the acid. Anxious to obtain some powerful caustic, which could be used without the inconveniences attendant upon the employment of strong acetic acid, we commenced using chromic acid in the form of minute crystals, and in a solution of one hundred grains to the $\bar{3}$. We had for years applied it to the destruction of chronically enlarged faucial tonsils, where we could not, or were not allowed to, remove them by the tonsillitome.

We had found chromic acid a powerful escharotic, not causing pain or hemorrhage, and, when cautiously used, perfectly under control.

Its action is that of a prompt solvent of organic matter. It rapidly oxydizes and decomposes the tissues. It loses one half of its oxygen, and is itself converted into the inert sesquioxide. It is, at the same time, an antiseptic and disinfectant. "It appears," according to Wood and Bache, "to owe its antiseptic action to its power of coagulating albumen and all protean compounds, in which it has been found to exceed all the acids and metallic salts that have been tried, being ten times stronger than carbolic acid, fifteen times stronger than nitric acid, and twenty times stronger than bichloride of mercury." *It gives less pain than other caustics.* It is one of the most powerful destructive agents to inferior organic life, greatly exceeding carbolic acid in this respect. With saturated solutions, made according to the formula of Marshall, of Unity College Hospital, (100 grains to $\frac{3}{4}$ i), its action is prompt and not penetrating—it takes hold at once. The mode by which we apply the chromic acid is, *first*, to moisten the mucous surfaces with the lead lotion, to protect them; *then*, taking the paste of chromic acid with a glass rod, very thin and pointed, to stick it into the centre of the polype, as far as we can. By turning the rod we wipe off all of the acid in the growth itself. The affinity of the acid for organic matter is such that it acts immediately. The growth crumbles and is removed easily with the forceps. There is no pain resulting, and no bleeding. The solution is not strong enough, in case of any of the application touching the mucous membrane, to destroy it as an escharotic, or even to blister it, yet there may some irritation result. The use, locally, of the lead lotion, however, protects the contiguous structures. If too much of the chromic acid be applied, we can easily remove it with a piece of soft cotton or lint before it has time to act as an irritant. After the first application, our view of the remaining portion is not obscured by blood. We can touch it, and thus, in a very short time, remove the whole growth.

If we prefer to use the finer snare, after the chromic acid has done its work, and get hold of the base, we can do so with ease and with greater precision. By the application of chromic acid we can touch the exact points of attachment, and prevent the reproduction of the growths, better than by any other process.

This acid can be used efficiently to both varieties of the gelatinous polypi: the simple sarcoma of the submucous tissue, overspread as it is with mucous membranes, with epithelium, and vibratile cilia; and to the adenomatous form.

We have thus destroyed mucous polypi in a number of cases. It has been in our hands an efficient and safe escharotic. It saves time, is effective and painless.

In *fibromata* it is valuable, but not to the same degree, because they extend frequently to a portion of the nasopharyngeal cavity.

We wish to be distinctly understood that we do not propose the employment of chromic acid, for the destruction of nasal polypi, to the exclusion of the surgical methods. We have found it effective as an aid to them—as facilitating their action in the removal of the growths by destroying the substance of the neoplasm; by making the operations less painful, less bloody, and by supplementing their action in destroying the insertion of the growths, and thus preventing their re-formation.

CHOREA LARYNGIS.

By FREDERICK I. KNIGHT, M.D.,

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DR. RADCLIFFE, in "Reynolds' System of Medicine," declares that "the term chorea is of widest and loosest significance, for it is scarcely too much to say that it is made to include every form of disorderly involuntary movement, partial or general, which has not altogether the specific characters of tremor proper, or convulsion proper, or spasm proper."

This will continue to be the case until the pathological condition, which is at the root of these disturbances, shall have been determined. The tendency among modern neurologists is to class chorea with hysteria as a functional neurosis; and these two diseases are certainly closely allied, often occurring in the same subject, or in the same family.

A typical case of chorea is, indeed, a very different thing from a typical case of hysteria; but, on the other hand, the two conditions are so suggested in some cases, that observers have taken refuge in the double nomenclature of "hysterical chorea." What is true of the whole is true of a part. What is true of general chorea is also true of its local manifestations, and many cases of local involuntary action, which have been described under one of these heads, might just as properly have been classed under the other.

Prof. Holland, in a clinical lecture on a case of "Choreal Spasm of the Larynx," says: "The functional nervous maladies are all closely allied. Deficient vitality in the ner-

vous apparatus causes an aberration in some of those functions that are said to represent the play of spirit on matter. This vague way of putting it is the best illustration I can give you of our ignorance of the essence of the diseases that are bounded by chorea, with heart-lesion on the one hand, and insanity without anatomical change on the other. Between these two extremes will be found hysteria, hypochondriasis, epilepsy, trance, and numberless derangements that have no name."

The object of this brief paper is to call attention to the different kinds of cases which have been reported as chorea laryngis, and invite discussion upon them. And, in considering these cases, as will be inferred from what I have already said, I do not think it necessary or judicious in our present knowledge to exclude those which give evidence of hysteria, even when the disturbance of the nervous system becomes as profound as in Geissler's and in Holland's cases. Choreic disturbance in the larynx is probably only one of many possible manifestations of the same morbid condition of the nerve centres. We are justified in using the term chorea laryngis when the movements, as seen in the larynx, are choreic. The evidence of general chorea should confirm rather than weaken the diagnosis. The existence of hysteria, or other morbid conditions of the nervous system, which are known to be often the causes of, or associated with, general chorea, should not prevent our applying the term chorea laryngis to what we see as such.

Massei, in 1879, doubted the propriety of considering any of these cases as neuroses of motion, and attributed the phenomena to reflex action from hyperæsthesia of the larynx. He contended that Schrötter took the name chorea laryngis from the symptom, instead of from the pathological condition which caused the symptom. This former mode of nomenclature we deem much safer, not only in regard to the affection under consideration, but also in regard to paralysis of motion, the causes of which are so difficult to locate.

Dr. Lefferts, in the same year, advocated a narrow restriction of the term, throwing out the cases which gave

other evidence of the choreic neurosis, the very evidence, it seems to me, which we want to confirm our diagnosis.

In the present modified state of our knowledge of nervous diseases, we see no objection to classifying all cases of irregular involuntary action of the laryngeal muscles as chorea, recognizing the fact, however, that we are simply stating symptomatic manifestations :

We shall find three varieties of cases reported :

1. Those in which not only the adductors of the larynx, but also the expiratory muscles of the chest and abdomen, are affected, producing a barking cough.

This class of cases has long attracted attention, and we find a considerable number of them recorded, both in pre-laryngoscopic times and since. Many of them have been reported as "spasmodic cough," "hysterical cough," etc., but many, also, as "chorea laryngis." Since the days of laryngoscopy the term was first employed by Mandl, afterward by Schrötter, Wheeler, Lefferts, *et al.* The group of symptoms in this class, though not constant, is now pretty well recognized.

The affection consists of a cough occurring in paroxysms and accompanied with more or less vocal sound, which is usually described as barking, but which, at times, has a crowing sound, and sometimes approximates a musical quality (Schrötter). It sometimes develops itself quite suddenly in a child who has been apparently in good health, but oftener in one whose nervous system has shown itself to be weak. The tendency to choreic action in the larynx sometimes shows itself long before the condition is established, as in Makka's case, where the boy barked twice in one evening, and not again for six months.

These paroxysms sometimes occur at a particular period of the day (as in the case of Geissler's), but more usually occur during the whole day with intervals of rest of uniform duration. The phenomena cease during sleep. It usually affects very young subjects, in most cases the patient being between eight and fourteen years of age. Spamer publishes a case of "intermittent snoring respiration" in a child of one and a half years, with general chorea, which he con-

siders due to a participation of the laryngeal muscles in the general muscular disturbance.

Sneezing is a concomitant in some cases. In some the vocal effort is more marked, resulting, as in the case of Wheeler's, in a note sustained throughout a prolonged expiration. In some cases the phenomena are increased by observation, and in some apparently acquired by imitation (Schrötter), as in general chorea. In a case of Voltolini's, there was a strong impulse to cough, but the glottis would not yield to the expiratory effort. The fact that the patient could cough easily when the mirror was in the pharynx, but at no other time, points to the hysterical element in this case.

This peculiar barking cough may occur independently, as it were, in a patient afflicted with another kind of cough. Mandl reports as "*une véritable chorée laryngienne*," a case in which a young girl, having bronchitis with nothing peculiar in the cough, was interrupted every four or five minutes by barking, which resounded with great violence. Laryngoscopic examination in these cases shows either no structural change, or only slight congestion of the mucous membrane.

2. Cases in which the muscles of the larynx alone have been affected. The only recorded case which I know of, is that published by me in the first volume of the *ARCHIVES OF LARYNGOLOGY*, in which the action was confined to the hyo-thyroid muscles.

I will now report the only case yet observed, so far as I am aware, in which there was well-marked chorea of the adductors of the larynx, without any affection of the expiratory muscles, and hence no effort at cough or vocal vibration.

A single woman, forty-two years of age, came to me from the country in January of the present year. She complained of a peculiarity of speech which she had noticed since August or September last. She had never had serious illness, and both looked and was considered the stout one of the family. There had been recently a little irregularity of the catamenia, but there was no marked disturbance in this function. On inspection of the throat

I found regular clonic spasms of the levator palati, occurring about 120 in the minute. On inspection of the larynx I found the same clonic spasms of the adductors, occurring synchronously with those of the palate. The vocal cords were driven together with such violence that I could hear them strike, and the patient complained to me of a ticking in the head, which troubled her when she lay down, which I identified as the collision of the cords. The larynx was normal in appearance, and there was no involuntary effort at cough or production of sound. When the patient spoke voluntarily, her speech was peculiar. The quality of the voice was thickened by the constant spasmodic closure of the posterior nares, and there was also a kind of deliberation and tremor in the voice, though no such interruption to the vocal sound as one would expect from such constant opening and shutting of the glottis. A slight movement, apparently communicated from the soft palate, could be seen on either side of the neck, and this, as well as the clicking noise, was said by her sister to continue during sleep.

This is a unique case, so far as I know. I have found no record of a case in which the adductors of the larynx were affected without any affection of the expiratory muscles; none in which the spasm was rhythmical, and none in which it continued during sleep. I have no knowledge either of such spasmodic action of the levator palati. The bilateral nature of the affection points to some central cause. The absence of other signs or symptoms of organic disease would lead me to classify it in the group of functional neuroses. The points of difference between ordinary choreic action and that in this case are: (1) that generally in chorea the movements are exceedingly irregular, yet Profs. Sée and Charcot both recognize a "rhythmical hysterical chorea"; (2) the action in general chorea ceases during sleep, or occurs only to such limited extent as might be accounted for by dreaming.

Whenever my patient fell asleep in the daytime in the room with her sister, this action continued. At my request her relatives tried repeatedly to enter her room at night, to observe whether it still continued, but their approach always wakened the patient. If the spasms continued during sleep it is certainly marvellous!

The only remedies so far tried in this case have been arsenic and quinine, both of which were given in increasing doses till the physiological action was obtained, without any effect on the spasm.

3. Cases in which the expiratory muscles alone have been affected (improperly reported as chorea laryngis). Chiari publishes, under the head of chorea laryngis, in connection with a case in which the laryngeal adductor muscles were markedly involved, one in which the expiratory muscles alone were affected. A boy, thirteen years old, who was said to have been always very pale, but well, presented himself with panting expirations without the production of sound. This condition had existed four months. In the beginning there were pauses of a quarter of an hour each; afterward there were no pauses, but the panting expirations continued the whole day. Sleep was always sound. There were about fifty such expirations in the minute, which were usually interrupted once or twice by a cough or hack. The panting sound was so feeble that it could only be heard when one was very near. The contraction of the abdominal muscles with every expiration could be felt. The laryngoscope showed only slight redness of the trachea, and the glottis was seen to remain open during these frequent expiratory acts. There were no choreic movements of other muscles.

I will only allude to other topics necessarily suggested in this connection, viz., the prognosis and treatment of chorea laryngis. If we take note simply of the form of perverted motion, without regard to its cause, as it seems necessary to do in the present limited state of our knowledge of the essential nature of such affections, diagnosis is not difficult. If we attempt refinement without sufficient groundwork to build on, our task will be very great. Simulation is not to be thought of in most cases. The incessant activity is usually evidently as annoying to the patient himself as to his neighbors.

The cases so far reported, as a rule, seem to warrant a favorable prognosis. Türk and Massei take a less favorable view of it than other observers. The most successful

modes of treatment have been those which one would naturally expect to be of service in patients of such diathesis, viz., quinine, the constant current, iron, and cold showers administered to the patient while standing in a warm bath.

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THE HEALING OF ULCERS IN LARYNGEAL PHTHISIS.

By WM. C. JARVIS, M.D.,
NEW YORK,

THE cure of phthisical ulcers in the larynx is still doubted by many, and there is much disagreement on the question of their treatment.

The difference of opinion held by eminent authorities, concerning the nature of these ulcers, may have helped to encourage a natural disinclination to be convinced of their cure. Conscious of this popular prejudice, I would have hesitated to present my case and views did I not feel that the evidence of others, the clear history, lesions, symptoms, and remarkable results, completely confirmed my claims.

Miss Coyard, aged forty-five, consulted me on May 22, 1882.

In the preceding February she had been confined to bed with what her physician called the pleurisy. Several weeks afterward, during convalescence, she experienced pain in the throat. The medicine prescribed could not be swallowed without severe pain, and was therefore abandoned. She consulted a well-known specialist, who, upon being interrogated by the patient's aunt, pronounced the disease consumption of the throat and incurable. The inquisitive lady promptly fainted, and was only restored to consciousness to be confined to her bed. I learned this physician's diagnosis several months after the patient called. Her appearance when first seen by me was extremely pitiful. Pale, emaciated, and peculiar to phthisis the general signs were distinct from the beginning. Though anxious to speak, her hoarse whisper was soon silenced by suffering. A painful cough

racked her unsteady nerves. Accumulations of mucus irritated the windpipe and renewed the paroxysms. Swallowing was almost impossible. Even liquids produced pain in deglutition. She was anxious to finish her meagre meal, and contemplated with horror the return of another. Words, she said, could not describe her suffering.

A laryngoscopic examination showed the laryngeal mucous membrane to be anæmic and irregular. Two pale, puffy projections over the arytenoid prominences gave the characteristic appearance of the pyriform tumefaction in laryngeal phthisis. The mucous membrane over one arytenoid was slightly abraded. The ventricular bands and vocal cords were thickened, and the lumen of the larynx was narrowed by the general tumefaction. A pale, irregular grayish ulcer had eroded the margin of the right vocal cord. All the structures were smeared with sticky muco-purulent discharges. A careful examination of the lungs, made by Dr. W. H. Snow, revealed consolidation of the apex of the right lung, localized softening at the apex of the left lung, old pleuritic friction sound, and cog-wheel respiration throughout both lungs.

My opinion being demanded on the question of a cure, I, from past experience, could only answer in the negative. I promised relief no more.

My local treatment was in many respects similar to the mild methods proposed by Dr. Bosworth. I was convinced that the parts would not tolerate the slightest irritation, and that local anæsthesia was necessary to relieve the tortured larynx. Acrid muco-purulent accumulations were carefully removed by means of alkaline sprays. Spraying was stopped when coughing seemed imminent or occurred. The cleansed structures were then bathed in a spray of Magendie's solution of morphia. Pulverized iodoform was finally thrown upon the part by means of a home-made powder-blower, working on the Ely principle. No tannic acid, acacia, morphia, or other substances were added to the iodoform.

Persuaded by experiment that iodoform is the only powder that can be comfortably borne by the nasal mucous membrane, I used it pure in the larynx. Applications were made every day.

Constitutional treatment was considered almost as necessary as local. An harassing nervous erethism was quieted by the administration of the bromides. Continued doses of the United States solution of morphia prevented the painful cough.

Relief, slow at first, steadily increased under the local treatment and artificially acquired rest. Advantage was taken of the increased toleration of the larynx, to administer a very palatable emulsion of cod-liver oil, pepsin, and pancreatin. The continuation of her method of communicating by writing, which she has been compelled to adopt before seeing me, was insisted upon. Though averse to eating, she craved the crushed strawberry, and soon succeeded in eating one with but little discomfort. Thus encouraged, she drank and enjoyed light wines.

I was compelled to leave the city at this stage of her improvement. She was advised to provide herself with medicine and spend the summer in the country. I feared the ground gained would be lost by the interruption of local treatment.

She went to the Catskill Mountains. Several months passed, and the patient, not appearing, was given up for dead.

In the early part of last January, she surprised me by a call.

Her changed appearance prevented immediate recognition. The hollowed cheeks were replaced by a full face, and the painful whisper by a distinct voice. She said outdoor life soon improved her appetite. She ate heartily, relished her meals, and steadily gained in weight.

I examined the larynx, and found an irregular crescentic excavation on the right vocal cord, composed of smooth cicatricial tissue. The lumen of the larynx was still small, and the arytenoid prominences large and smooth.

Although the laryngeal structures were distorted, they were clean and compact. Phonation and respiration showed free movement of the cords. The voice was low-pitched and sometimes rough. This was evidently due to deficient vibration of the eroded cord. The patient pronounced

herself well, and was making arrangements to return to Europe. Dr. Alfred Loomis discovered signs of fibrous phthisis.

Conclusions.

A case of this kind, carefully studied, naturally suggests many thoughts.

The appearance and progress of the ulcer exclude the probability of its being tuberculous. Tuberculous ulcers, as a rule, do not commence at the true cord's edges and eat their way outward.¹ The existence of the ulcer may be inferentially accounted for by observing the production and course of superficial sores in the mouth. I have learned from personal experience that, at certain times, one may with impunity lacerate the buccal mucous membrane and expect the torn tissues to quickly heal. The same amount of injury, however, may at another time result in a protracted superficial sore, though the health is apparently unimpaired. Perversion of the buccal secretions invariably preceded or existed with the last-mentioned wound. If covered with shellac varnish, or a metal albuminate, they rapidly healed under the protective pellicle. They also repaired slowly if treated locally with iodoform. When located upon a portion of the mouth in frequent motion, as the palatine folds, and left untreated, they degenerated into painful superficial ulcers, causing much discomfort in deglutition, an annoying nervous erethism, headache, and general debility. There is but little wanting, besides the degree, to create an analogy between this lesion with its peculiar symptoms and the condition of the phthisical patient.

As the lesion upon the palatine fold was caused by direct injury, and similar lesions cannot occur spontaneously, so we infer that the ulcer in the phthisical patient originated from an injury. It may have been produced by a cough, or any violence of a similar nature applied to the friable and infiltrated laryngeal tissues. Acrid discharges and constant motion more than meet the analogy and complete the result.

¹ M. Mackenzie : " Diseases of the Throat and Nose," 1880, p. 360.

Although the above history does not warrant the physician in extending hope to the majority of patients suffering with phthisical ulceration of the larynx, it demonstrates the curability of certain forms found in this disease. The dependence of the reparative power of ulcers upon depth, as shown in superficial and deep syphilitic lesions, is rendered as proportionately greater in phthisical ulcers as the pain, poor nutrition, and lowered vitality exceed that of syphilis. To expect good results where extensive phthisical erosions involve the laryngeal skeleton, is to over-estimate human endurance.

I have not considered many points of interest, and have intentionally omitted to compare and temper my views, since, to do so, would require more time than the occasion affords.

PARESIS OF THE CONSTRICTOR MUSCLES OF THE PHARYNX, SIMULATING SPASMODIC STRICTURE OF THE ŒSOPHAGUS.

By F. H. BOSWORTH, M.D.,

NEW YORK.

I ASK your attention to some brief clinical observations on the above topic, together with a report of a number of cases which have come under my care within the past few years. I speak of them as simulating spasmodic stricture of the œsophagus from the fact that in one of the cases this resemblance was so marked as to somewhat mislead me, and that, moreover, Mackenzie and others, in mentioning the disease, say that it is always associated with paralysis of the œsophagus, a condition closely associated with spasmodic stricture.

The condition to which I call attention is not the paralysis so frequently a sequela of diphtheria, nor again that associated with glosso-pharyngeal paralysis or other neurotic diseases, but one purely myopathic in its origin and chronic in character. I shall commence with the narration of the cases.

CASE I.—On March 5, 1881, I was consulted by a gentleman from Virginia with the following history: He had always enjoyed perfect health, had never had syphilis or any other disease. His life had been an out-door life, carrying on a large farm. Age sixty-three. Five years ago he had noticed some little difficulty in swallowing; not marked, but still sufficient to cause a slight annoyance. This had disappeared for a while, but again occasion-

ally reappeared. Within a year the difficulty had been more prominent, and in three months past, had become so serious that he had been unable to swallow any solid food, and of late the swallowing of liquids had become difficult. In swallowing solids, the bolus was passed into the throat, where it lodged, and he could pass it no farther, and was compelled to void it in order to breathe. In swallowing liquids he succeeded, but it was an exceedingly slow process; the fluid being passed into the throat in small quantities, and apparently being allowed to make its way into the œsophagus by the force of gravity.

When I saw him and examined him, my first impression, on watching him swallow a small portion of water, was that his trouble was œsophageal stricture, but on passing a bougie I found no obstruction whatever. On inspection of the fauces, my attention was notably attracted to the emaciated appearance, if I may use the word, of the posterior pharyngeal wall. Its mucous membrane was of a light pink color, apparently very thin, and stretched, as it were, over the bodies of the vertebræ. On irritating the region with a probe I failed to excite any reflex movement of the pharyngeal constrictors, but there was an entire absence of that yielding, cushion-like softness noticeable in a healthy pharynx. I then made use of a strong faradic current, applied in various ways, but failed to secure any reaction in the muscles. The man was at the time feeble and much emaciated from lack of nourishment. I immediately put him on use of full doses of strychnia, made daily use of the faradic current, and instructed his attendants in the use of the stomach tube, directing that the most nourishing liquids be administered five times daily. He remained under observation three weeks without relief. At no time was I able to obtain any reflex movement of the muscle under the use of the electric current, though his general health improved somewhat under the vigorous course of artificial alimentation. He became discouraged and returned to his home, and I was informed of his death occurring in the latter part of April. No new symptoms developed, and he died of exhaustion. His end was undoubtedly hastened by his extreme depression of spirits and his aversion to the method of feeding by the tube.

CASE 2.—On Dec. 17, 1881, I was consulted by J. S. V., aged fifty, with the following history. Fifteen years ago he had an ulcerated sore throat, and was under treatment for a year for syphilis; with this exception he had always enjoyed perfect health. For two

months he had noticed a difficulty in swallowing, which had increased to the extent that in the past two weeks he had been unable to swallow any solids, any attempt at swallowing a solid bolus of food resulting in its lodging in the back of the throat and causing a violent choking attack. He seemed to be well nourished and in perfect general health. An examination of his pharynx with a probe showed somewhat diminished sensibility, and but feeble reaction of the pharyngeal muscles, though there was undoubted motion. There was no noticeable emaciation in that region. With the æsthesiometer the perceptive distance was, both vertically and horizontally, a quarter of an inch. With the faradic current, one electrode applied to the pharynx and the other to the back of the neck, the reaction was decidedly sluggish.

He was put on strychnia, gr. $\frac{1}{12}$ *t.i.d.* and was seen three times each week, and the electric current applied as above. The improvement was rapid and most satisfactory. At the end of three weeks I saw him for the last time, when he could swallow solids with no difficulty. I should say that during the first two weeks of treatment, the use of solid food was forbidden.

CASE 3.—Mrs. A. J. S., age fifty-eight, consulted me Aug. 18, 1882, complaining that for three years she had been troubled with a difficulty in swallowing, which was on the increase. She could take solids but with great difficulty, being compelled to swallow deliberately, the act occupying some time to complete. Her general health was fairly good, and she presented no symptom of any general or local nervous disorder. An examination of the pharynx showed nothing noticeably abnormal on gross inspection. The probe, however, showed noticeably sluggish reaction of the constrictors. With the æsthesiometer the perceptive distance was a scant $\frac{1}{4}$ inch.

This patient came from out of town, and I could not see her often. I therefore gave her the following :

R

Strychniæ, gr. ii.

Acid phosphoric. dil., $\frac{2}{3}$ ss.

Tinct. ferri, $\frac{3}{4}$ iii.

Elix. simpl. ad. $\frac{2}{3}$ iv.

Sig. One teaspoonful before each meal.

I also directed her to change a somewhat sedentary in-door life for a more active out-door habit, and ordered the daily use of cold sponging of the neck and shoulders each morning, and, moreover, that no solid food should be taken for the present. I saw the patient

once each week. As the progress was most satisfactory, at the end of two weeks she commenced taking solids moderately. I last saw her on Feb. 20, 1883, when she reported herself entirely well.

CASE 4.—Mrs. G. D., age forty-six, consulted me on March 15, 1883, with the following history: Eight years ago, she first noticed difficulty in swallowing. The bolus seemed to lodge in the throat, and she was unable to carry it down. This gave her not much annoyance at that time, but had slowly increased, until during the past winter it had been much worse. For a week she had taken no solids, though liquids were swallowed without difficulty. An examination showed a noticeable sluggishness of the pharyngeal muscles when irritated with the probe, the response being feeble and the motion quite limited. The other muscles of the fauces were normal. The æsthesiometer showed a perceptive distance of $\frac{1}{4}$ inch. With the battery the reaction was fairly normal. There was no apparent emaciation of the pharynx. She was directed to refrain entirely from the use of solids, and to take the same prescription as given in Case 3.

This patient was under observation six weeks, and last seen May 1st, when she was entirely well.

CASE 5.—A married woman, age forty-seven, consulted me on March 2, 1883, with the history of slightly difficult deglutition extending back four years.

For six months this had been increasing in a marked degree. For a week she had been compelled to use liquid food alone, any attempt to swallow solids causing violent choking attacks, the bolus apparently lodging over the entrance to the larynx. Her distress would be very severe until she succeeded in removing the mass with the finger, either pushing it down or drawing it out. An examination revealed, as in the other cases, a notably sluggish action in the constrictor muscles, both on stimulation with the probe and by the faradic current.

She was put on the use of strychnine; solid food was interdicted, and cold sponging with out-door exercise enjoined.

This patient is still under observation, but the improvement has been most satisfactory. She is now taking solids in moderate quantities, and swallowing with comparative ease.

I have brought these clinical reports before you mainly as bearing on what we have been taught to call myopathic paralyses. In none of these cases was there any evidence

of a prominent neurotic element. The paresis of the constrictors constituted the whole disease, and it is this affection existing alone, and not as a part of any other disease, such as glosso-pharyngeal paralysis, etc., to which I would call attention, making it the text for a few very brief considerations on the subject of overworked muscles. Muscles which are overworked show a tendency sooner or later to break down. Those muscles which are kept in the greatest state of activity show this tendency in a more marked degree. This tendency is still more marked if the muscle lies immediately beneath a mucous membrane in a state of chronic inflammation, the muscular fibres being undoubtedly to an extent weakened by the extension of the even slight inflammatory process.

The busiest and hardest working muscle in the body is the heart. In it are combined ceaseless activity and exceedingly laborious activity. Hence more than any other single muscle in the body do we find the heart subject to myopathic deficiencies.

Next to the heart we find perhaps no busier muscle than the abductor muscle of the larynx. In this muscle, then, also, we find a tendency to paresis. Its activity is ceaseless, commencing with the first breath of life, and ending only at the grave; but while it is a ceaseless activity, it is not a laborious one. The mere act of rotating the arytenoid cartilages outward requires the expenditure of but a small force. We find, therefore, that paresis of this muscle is a somewhat rare occurrence, but that there is an inherent tendency in it to paralysis, which does not exist in the other muscles supplied by the recurrent laryngeal nerve, it seems to me, cannot be questioned, excepting perhaps the tensor muscle, which, however, as will be noticed, possesses other elements of weakness. Semon, in commenting on paralysis of the abductors, heads his article: "The inherent tendency of the abductor fibres of the recurrent laryngeal nerve to become paralyzed." He states a clinical fact for which he offers no explanation. The clinical fact I regard as fully established by the recent cases reported of pressure on the recurrent laryngeal nerve giving rise to abductor paralysis. Semon's

deduction I cannot accept. The true explanation of these cases is in the fact that the hardest-working muscle, as the overworked animal, is the first to break down under a strain. In the case of abductor paralysis, the nerve-supply is cut off from all the muscles. The result is that the hard-working muscle breaks down first.

The thyro-arytenoid muscle is another striking illustration of this tendency. This is an exceedingly busy muscle, and one whose activity is most laborious. It is a small, slender muscle, but when its bulk is considered in connection with the work it is compelled to do, that it should be very frequently the seat of myopathic paresis is not to be wondered at. Another source of weakness here is the fact that the muscle lies immediately beneath the mucous membrane lining the larynx. A chronic catarrhal inflammation of the membrane is most common, and, when existing, I think, acts to weaken the muscular fibres by some slight extension of the morbid process. Paresis of this muscle is far more common than of the abductor, though the latter is a far more busy muscle; but while the abductor is never at rest, its work is very light; on the other hand, the tensor, while getting an occasional rest, when on duty is compelled to do much laborious duty. Especially is this true when the higher power of the larynx is brought into action, as in the singing voice. The most important muscle in the larynx to the singer is undoubtedly the thyro-arytenoid, which, in the main, is a tensor muscle, and on which the pitch of the voice depends. It is the very frequent seat of myopathic paresis. The explanation is very simple. In the singing voice the lower and middle registers are taken with ease in most cases. That the notes of the higher register be brought out in clear, round tones, it is absolutely essential that the nasal and pharyngeal centres be in a thoroughly healthy condition. If they are not, the singer misses something in his tone, it is muffled to an extent, and he tries to overcome the deficiency by an additional effort—in fact, by forcing his voice. The result is a strained voice, from weakening of the tensor muscle.

I have thus departed very materially from my original

topic, but my main idea has been to bring before you the question of myopathic paralysis. The subject has undoubtedly been much obscured by the formerly prevalent idea that we must seek for the cause of these troubles in the nervous system. This idea was fostered also, I think, by the earlier writers giving the name paralysis to these affections of the individual muscles.

As regards paresis of the constrictors of the pharynx, the main points have been covered in the histories narrated. The source of the trouble in all these cases was undoubtedly primarily in the muscles themselves. The first element of weakness was in the chronic pharyngeal catarrh extending somewhat to the muscular fibres. The weakened muscle, called upon to do its ordinary work, broke down, and grew gradually weaker, until, with rest and proper treatment, its integrity was restored.

The treatment in all cases was rest, the interdiction of solids, strychnia, fresh air and bathing, and in all but the first case was successful.

CLINICAL NOTES.

A DANGER ATTENDING THE USE OF SILVER TRACHEOTOMY TUBES, IN CERTAIN CASES.

By GEORGE M. LEFFERTS, M.D.,

NEW YORK.

To the dangers incident to the wearing of a tracheotomy tube, which have, of late, been so freely and so widely commented upon, I have one to add, which has been thus far, I believe, unrecognized or at least unreported. That the question which is involved is of interest, is beyond doubt; that it is of practical importance, will, I think, be conceded.

A patient of mine, a woman, had an ordinary silver tube inserted into the trachea for the relief of an urgent dyspnœa, occurring during the course of what was believed to be a syphilitic perichondritis of the laryngeal cartilages. Stenosis of the larynx persisting, the tube has necessarily been worn ever since—two years or more;—latterly, the outer canula alone. During the first part of this time, especially immediately after the performance of the operation, she took large quantities of iodide of potash, with the biniodide of mercury, usually well diluted with water; the doses being carried up to the point of toleration by the stomach. The act of deglutition, as is so often the case with a tracheotomized patient just after the operation,—the condition not infrequently lasting some time,—was incompletely performed; small quantities of fluid always passing into the larynx, down the tracheal walls, and appearing at the mouth of the wound by the side of the tube. This defect in my patient's case was due to the great swelling and consequent immobility of the superior laryngeal parts dependent upon her disease,—hence imperfect closure or adduction of the false vocal cords, and a pervious larynx during the act,—and not to any

pressure that the tracheal tube exercised through the posterior tracheal wall upon the œsophagus.

The point that I now make is,—the facts being as stated: every attempt to swallow the given dose of the solution containing a strong percentage of the salt of potash, was followed by the entrance of a portion of it into the larynx and trachea, in which latter locality it came into contact with and bathed the superior and lower convex surface of the silver tracheotomy tube, collecting in the *cul-de-sac* formed between its end and the posterior tracheal wall upon which the former rested.

The difficulty of obliging a patient in the “out-door department” of a hospital to attend properly to the periodical removal and cleansing of the tracheal canula, will be generally appreciated. My patient disappeared; my absence in Europe followed, and this very necessary precaution was neglected for some time—I think three or four months. Suddenly she reappears, driven back by what she describes as an unexpected and dangerous condition of dyspnœa. The tube is at once removed by my assistant, and found in the condition shown in the wood-cut. The large piece,



evidently missing—whether in part or in whole, is unknown,—is sought for, first by probing, and this failing, by enlarging the tracheal wound and thorough exploration of the air-tract, but not found. Exuberant granulations about the inner, upper, and anterior edge of the tracheal wound, to a lesser degree about the lower, under the concavity of the canula, upon the presence of which depends, in part, the obstruction to the passage of air of which the patient complained, are removed; the parts cauterized, and a new and larger silver tube introduced.

She has since had no further trouble, and no evidence as to the

fate of the missing portions of the canula have ever been forthcoming.

To practically test the question, whether a silver tracheotomy canula, under the conditions named, can be affected by an iodide of potash solution containing mercury, as I believe the tube in this case to have been, my friend, Mr. T. F. Main, instituted certain experiments.

Without going into minute details, it was found, that silver ten-cent pieces, half suspended in a solution of the average strength taken by the patient, viz., iodide of potash gr. xv, biniodide of mercury gr. $\frac{1}{16}$, water $\frac{7}{8}$ ss., were quickly corroded, and under the microscope showed true molecular degeneration. An exposure in the solution of several days was necessary to effect any marked change, but it was produced in every instance. The action of a solution of iodide of potash of the same strength, but without the mercury, was slower.

In both of the experiments, it must be borne in mind, a silver coin, which contains alloy, and is therefore both harder and less pure than the silver tracheotomy tube, was used. The natural inference is that the action of the same solutions upon the latter would be much quicker.

To the patient's negligence and disobedience of orders is clearly attributable the occurrence of the accident. That the latter might have had much more serious consequences is plain. That it is common I do not believe. Never before has it occurred in any case of mine, although I have had others under similar conditions, barring the neglect of the tube. That the possibility of its occurrence should be borne in mind, is desirable; and that the latter is easily preventable by the use of a hard-rubber canula, will be apparent.

A CASE OF MEMBRANOUS OCCLUSION OF THE LARYNX FOLLOWING DIPHTHERIA; THYROTOMY; CURE.

By CLINTON WAGNER, M.D.,
NEW YORK.

The following account, condensed from a full report of the case kindly furnished me by Dr. G. M. Swift, until very recently House Surgeon of the New York Foundling Asylum, contains the main points of interest in the patient's history down to April 9, 1883, when I took temporary charge of the case.

Oswald, aged three and three-quarter years, was attacked at the Foundling Asylum, Nov. 8, 1882, with what appeared to be a simple croup.

On the following day there was loss of voice, breathing slow and stridulous, increase of temperature, and rapidity of pulse. During the night the dyspnœa became so urgent that Dr. O'Dwyer inserted his "laryngeal tube," which gave marked relief. The tube was worn almost continuously for forty-eight hours, when the dyspnœa became so alarming that Dr. Swift performed tracheotomy. At this time the child's temperature was $103\frac{3}{4}^{\circ}$, pulse 160. After the operation pieces of membrane from time to time were coughed up. The diphtheria gradually disappeared, but every attempt to dispense with wearing the canula was followed by extreme dyspnœa.

On Jan. 31st Dr. O'Dwyer enlarged the original incision in the trachea. Nothing was discovered but a few small granulations on the lower border of the cricoid cartilage and edges of the tracheal wound.

The canula was left out, but during the evening the dyspnœa compelled its re-insertion.

I first saw the child in the latter part of March, 1883. Upon removing the canula and closing the wound in the trachea, dyspnœa came on rapidly. It was chiefly inspiratory, indicating laryngeal obstruction.

An attempt to obtain a satisfactory view with the laryngoscope was unsuccessful, owing to the struggling and resistance of the child. I gave as my opinion that there was obstruction of some kind above the canula, because respiration could not be maintained for any length of time after its removal.

The presence of voice proved that the occlusion did not involve the entire calibre of the larynx, for upon closing the mouth of the canula sufficient air passed upward to cause the vibrations of the cords necessary for voice-production.

Furthermore, I stated that I thought that the occlusion was caused either by a membranous web stretched across the larynx or by a growth, probably a papilloma.

I suggested thyrotomy, which I was subsequently requested to perform.

On April 9th, chloroform was administered, and the operation performed. I found below the cords, and just above the inferior border of the thyroid, a membranous web stretched across the

larynx and occluding at least the anterior two thirds of its lumen. This I removed carefully by means of the knife and scissors, after which I had no difficulty in carrying my index finger upward through the glottis and into the cavity of the mouth.

The wound was closed, the canula re-inserted and permitted to remain until April 21st—about twelve days,—when it was removed. By May 1st the external wound had quite healed. The child at the time of writing, June 1st, is in good health, has gained greatly in flesh, breathes without difficulty, and has excellent voice.

Remarks.—Solution of continuity to any great extent of the parts lining the larynx and trachea, from whatever cause, is apt to be followed by stenosis. Especially is this the case in the cicatrization following the destructive ulcerations of tertiary syphilis, in which class the membranous web is not unfrequently found.

In laryngeal diphtheria, with extensive exudation, I am inclined to believe that membranous occlusion is a more common sequel and causes more deaths than is generally supposed. And this condition, perhaps, may furnish an answer to the question: "What becomes of children who have successfully undergone the operation of tracheotomy?"

In the case above described, *tracheotomy had no connection with, or bearing upon, the condition which necessitated thyrotomy*; the condition was a *sequel of the diphtheria*. In laryngeal diphtheria in which tracheotomy has been successfully performed, and in cases in which, during the attack, it was not found necessary, but in which, later on, laryngeal dyspnœa appears, an exploratory thyrotomy should be performed, especially if a laryngoscopic examination can not be made.

The following case, which occurred in my hospital practice several years ago, although previously published,¹ is of especial interest in this connection.

* * * * *

A little fellow, aged five years, was admitted into the Metropolitan Throat Hospital about four and a half years ago. He was suffering from alarming dyspnœa, with frequent attacks of spasm of the glottis. An examination revealed a large papilloma attached to the right cord and almost completely filling the box of the larynx, and between the cord posteriorly could be distinctly seen what appeared to be a web of membrane stretched from cord to cord. The child was much reduced in flesh and strength, and thyrotomy was at

¹ *Medical News*, Feb. 3, 1883.

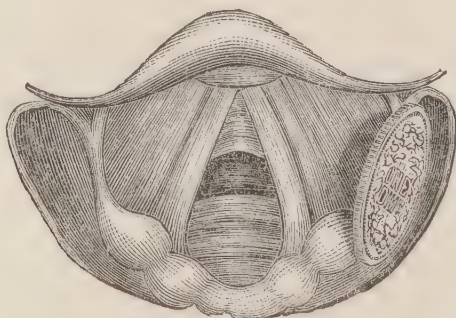
once decided upon. Tracheotomy was first performed, and immediately afterward thyrotomy. This growth was removed, the false membrane cut away with the scissors, and the patient put to bed. The membrane was probably the result of an attack of croup which he had had some time before. The boy recovered perfectly and gained rapidly in strength and flesh, and was discharged five weeks after the operation. I saw him some two years later ; he was in perfect health and there had been no recurrence of the growth.

TWO CASES OF FOREIGN BODY (COINS) IN THE LARYNX ; REMOVAL.

By FRANK L. IVES, M.D.,
NEW YORK.

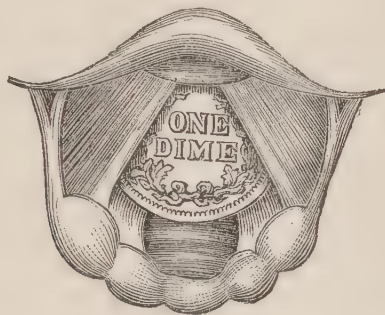
Notwithstanding the fact that the lodgment of foreign bodies in the air-passages is to the specialist a matter of not unusual occurrence, I think the following cases are worthy of mention, particularly the second, owing to the peculiar position which the coin occupied, and the trifling inconvenience that it caused the patient, contrary to what might naturally be expected.

CASE I.—On March 26, 1883, Mary C., aged sixteen, while running through the street on an errand, holding a ten-cent piece in her mouth stumbled and came near falling; on recovering herself she missed the coin from her mouth, but felt something in her throat; she returned to her home, and was immediately brought to my office. A laryngoscopic examination showed the coin to be standing upon its edge in the left pyriform sinus (as shown in the accompanying wood-cut).



After a few moments spent in quieting the patient, I was able to introduce a pair of tube forceps, seize the coin, and remove it.

CASE 2.—On April 1, 1883, at about 1 P.M., D. S., a man forty-seven years of age, while playing with his daughter, put a ten-cent piece in his mouth. Inspiring suddenly he drew it into his larynx; he was immediately seized with a violent attack of coughing, lasting, he thought, about five minutes; when he recovered, he found his voice to be reduced to a whisper. He consulted a druggist, who administered an emetic, which acted promptly but failed to dislodge the coin. A physician whom he saw shortly after advised an operation, but he refused, as he felt no inconvenience other than the loss of voice; he could breathe perfectly well, swallow without any difficulty, and had no pain or soreness in his throat. On the afternoon of the 3d he was brought by a friend to the Clinic for Diseases of the Throat in the New York Eye and Ear Infirmary, where I made a laryngoscopic examination, and saw the coin lying horizontally in the anterior portion of the larynx, resting upon the vocal cords, the edges anteriorly being under the false cords, as shown very accurately in the wood-cut.



Upon attempted phonation the cords were separated about a quarter of an inch. After demonstrating him to the class, I passed in a probe and found it to be firmly lodged in its position. On the following day I made several attempts to seize the coin with a pair of tube forceps with horizontal blades, but owing to the smallness of the space between the edge of the coin and the posterior portion of the larynx I was unable to get the lower blade under the coin without touching the parts, which immediately caused an attack of coughing. Finally, his larynx becoming very irritable, I directed him to report to me the following day, when, upon the second attempt, using a pair of forceps with shorter blades, I was able to seize the coin, but when I attempted to move it the larynx contracted so strongly that the blades slipped off. This was followed by severe coughing; as soon as it ceased I made an examination, but there was no change in the position of the coin. He refused

to have any thing more attempted that day. The next evening he appeared with his voice in its normal condition, and stated that at about 5 P.M. he began to cough violently, and continued to do so for about ten minutes ; when he ceased he found his voice to be restored. He was certain he had swallowed the coin, as he caused a thorough search for it to be made in the room. A laryngoscopic examination showed that it was not in the upper air-passages, and a careful examination failed to detect any evidence of its presence in the chest.

TRANSACTIONS
OF THE
FIFTH ANNUAL MEETING
OF THE
AMERICAN LARYNGOLOGICAL ASSOCIATION,
HELD IN THE HALL OF THE ACADEMY OF MEDICINE, NEW YORK,
MAY 21, 22, AND 23, 1883.

First day, morning session.

*Discussion on Dr. George M. Lefferts' Paper.**

Dr. ELSBERG said that as he was just recovering from a severe illness he felt physically unable to enter upon a discussion of the exceedingly interesting subject brought forward by Dr. Lefferts. He desired simply to state that he did not agree in regarding these cases as either vertigo with Dr. Charcot, or as epilepsy with Dr. Gray ; although they simulate both these affections, and certainly imply a neurotic condition of the patient.

Last year at the Congress of this Association, he had referred to four such cases that had come under his own observation, and one described by Dr. Hack. He considered them cases of complete or total spasm of the laryngeal adductor muscles,—that is, spasm of *all* the adductor muscles, and to this completeness is due the brief duration of each attack and the safety of the patient. In incomplete spasm, that is, when not all the adductor muscles are affected, partial respiration but incomplete aëration of the blood may go on and lead to a fatal issue unless tracheotomy be performed ; but the total spasm produces unconsciousness, whereupon the spasm relaxes and the attack is over.

* See page 165.

Dr. KNIGHT suggested the theory that the phenomena were due simply to the disturbance of the respiratory function, as supported by the fact, well known, that temporary unconsciousness may be produced by rapid respirations, as in the practice of auscultation ; in fact, anæsthesia for operation was sometimes so produced before the days of chloroform and ether.

Dr. MAJOR remarked that though not prepared to discuss so abstruse a phenomenon as that propounded by Dr. Lefferts on purely scientific grounds, still on general principles he thought it well not to lose sight of the fact that such a condition might probably be considered an epileptic aura. Such peripheral irritation occurred elsewhere, then why not in the larynx? At the same time, he did not seek to diminish the interest of the subject to the pure laryngologist.

Dr. S. JOHNSTON thought the suggestion offered by Dr. Knight a good one, having personally experienced an attack of vertigo from rapid respiration.

Dr. INGALS suggested that the brief and sudden loss of consciousness was similar to that of the pseudo-apoplexy of fatty degeneration of the heart.

Dr. LEFFERTS, in closing the discussion, said that it would seem from the remarks, that the whole subject is, as he had said, involved in doubt and obscurity. Of course, it is very easy to construct theories to account for the phenomena presented by these patients. He was inclined to believe them due to one of the various auræ of epilepsy, commencing in the larynx. The subject is a comparatively new one in laryngology, and affords a wide field for future investigation and study, which he commended to the further consideration of the Association.

*Discussion on Dr. S. W. Langmaid's paper.**

Dr. CARL SEILER said that he had been very much interested in the admirable paper just read ; especially so because he had a case under his care exhibiting the same phenomena. He could not agree with the reader of the paper, that the condition described is due solely to misuse of the voice, although such over-exertion may aid by producing fatigue of the muscles of the larynx. He had noticed in a great many cases a gradual failure of vocal power in singers ; and, finally, an actual break occurs. In such patients

* See page 170.

he had found, in the great majority of cases, an enlargement of the pharyngeal tonsil, which caused narrowing of the upper air-chambers, and by shutting off, to a certain extent, the nasal chambers, prevented the vibration of the vocal cords from being aided by the vibration of the air contained in these cavities. In the case he had first referred to, the voice has become a great deal stronger, since the removal of an hypertrophied tonsil. The appearances described in the paper were undoubtedly present, but the removal of the tonsil aided in the cure, and the voice improved almost immediately after this obstruction was taken away.

Dr. WM. H. DALY said that two cases had come under his notice within the last three months, illustrating the condition so ably described by Dr. Langmaid. The first was a former patient of Dr. Langmaid, and was referred back to him for treatment. He was a leading member of an opera company ; he had a well-developed larynx, and there was no abnormality of the nasal chambers, certainly no enlargement of the pharyngeal tonsil. He was a very conscientious singer and his confrère was a very lazy one, so that he was forced to make extra effort in order to sustain his part to the best of his ability, and sometimes to his own disadvantage. He was suffering very much when he came to Pittsburg, so much so, that he was afraid to undertake his rôle, lest his voice should suddenly fail him on reaching a certain high pitch. After a very careful examination of the case with the laryngoscope, as well as a general examination, an opinion was expressed, that he was suffering from fatigue of the laryngeal muscles, due to overwork, and he was directed to rest his voice for a time by either withdrawing entirely from singing, or by practising the arts resorted to by his colleague.

The next case was that of Miss A., an eminent opera singer, who, while sustaining the leading rôle in an opera in Pittsburg, found her voice suddenly fail her in attempting to carry notes in the upper register, which ordinarily were accomplished without the slightest effort or inconvenience. On being called to see her, she was found in a high state of nervous excitement, incident to the circumstance of the house containing a crowded and expectant audience, awaiting an unfinished rôle by the leading singer. A hasty laryngoscopic examination enabled me to assure her that sufficient relief could shortly be rendered to enable her to continue her part with some degree of satisfaction.

The laryngoscopic inspection had disclosed a patch of our fa-

vorite Pittsburg soot, which was dried and fastened upon the right vocal cord, covering about one third of its extent at its anterior end. When this was removed by first moistening it by means of the spray, and then by using a soft cotton brush, a hyperæmic patch was revealed beneath, which readily accounted for the adhesion and drying of the foreign substance upon the cord, and creating a large part, at least, of the disability.

She had been singing for many consecutive nights, and was consequently overworked. After the thickish film of dried soot was removed, she was enabled to proceed with her rôle, but not, however, without the remaining difficulties attending relaxation of the vocal muscles called upon in the formation of the upper notes. She greatly improved under local treatment with as much rest as could be obtained under the pressing circumstances of her position before the public.

Cases of this character require more than local treatment, however, and ergot, nux vomica, and other nerve stimulants will restore normal contractility, and will assist, with rest, in re-establishing a healthy action.

Dr. GEORGE W. MAJOR said that the last patient mentioned by Dr. Daly had also been under his care last spring. She had been very much overworked. A condition resembling paresis of the arytenoid muscle was discovered, with slight hyperæmia. Rest was advised, but the advice was not followed.

In closing the discussion

Dr. LANGMAID said: In reply to Dr. Seiler he would say that it seems not unlikely that the occurrence of an hypertrophied pharyngeal tonsil might easily help to produce such a disturbance in the production of tone, as to lead the singer to adopt some unnatural method of singing which would be likely to produce fatigue of the vocal organ.

He quite agreed with Dr. Daly that treatment by strychnia, galvanism, and other means is to be used in these cases. He has never used ergot.

Since reading the paper he is informed by Dr. Elsberg that Mandl has written upon the subject. He was quite unaware of this, and should be glad to compare Dr. Mandl's observations with his own.

*First day, afternoon session.**Discussion on Dr. Frank Donaldson's Paper.**

Dr. WM. C. JARVIS said that a case came recently under his observation which offered an excellent opportunity for the study of gelatinoid polypi. In this patient a markedly deviated septum had closed the superior meatus of the left nostril, causing a severe hemi-crania, worse in damp weather. Believing that the headache was dependent upon the malformation, he removed the deviated tissue and found the roof of the nose occupied by a number of bead-like polypi. He believed his ecraseur, by nipping off a piece of the mucous membrane, prevented the return of growths removed by this method.

Chromic acid is desirable to shrivel up young polypi, but the ecraseur should be always used for the larger growths.

Dr. SEILER said that he had some remarks to make in regard to the pathology of polyps. He had examined a large number of growths microscopically and had found them to consist of localized hypertrophies of the mucous membrane which had undergone myxomatous degeneration. He had therefore thought that recurrence was not due to regrowth from pedicle, but due to new formation of polypoid growths caused by irritation, and that if all polyps were removed there would be no recurrence. He had found the wire snare of the Jarvis pattern to be superior to chemical escharotics, and that he used the galvano-cautery, if necessary, to destroy the stump, as it was less painful and gave rise to less irritation when properly used than any other caustic he had ever used.

Dr. W. F. DUNCAN said that he had treated a large number of nasal polypi, and, very much to his regret, had noticed a re-development of the polypi, under all forms of treatment, except where a part of the underlying turbinated bone had been removed. Chromic acid he had found useful to produce shrinkage of the growths, thus giving more room for the subsequent operation, and also in reducing the danger of bleeding after removal. The point which he especially wished to make is this, that after any operation, except the one mentioned, for the removal of gelatinoid polypi they would be likely to return in the course of four or five years; The only method in which there is no recurrence is that advocated by Morell Mackenzie and Professor Gross, of removing a portion of the turbinated bone with the base of the polypi.

* See page 175.

Dr. DALY inquired if the application of the chromic acid and removal of the growth were accomplished at one sitting.

Dr. DONALDSON replied that they were.

Dr. DALY said that this would remove one objection to the treatment. He had no personal experience with the treatment as advocated by the lecturer, but it had always appeared to him that any treatment except that of prompt removal was a waste of time. He had used chromic acid in fine crystals, applied with a copper curette or spoon to naso-pharyngeal growths, with much satisfaction. He had also used acid nitrate of mercury and glacial acetic acid, and had been much pleased with them. He did not think it makes a great difference which form of caustic is applied—the effect is about the same.

Dr. DONALDSON, in closing the discussion, said that he had used all the other caustics, but infinitely preferred the chromic acid; it acts more promptly and is more efficient. Ordinarily, he asks the patients to report themselves once or twice afterward, so as to see that the growth has been entirely removed. He did not say that the pedicle of the growth can not be removed with the snare, but merely that the chromic acid was more convenient to use than the snare.

*Discussion on Dr. Knight's Paper.**

Dr. MORGAN stated that he had been particularly interested in Dr. Knight's paper; as he had an obstinate case of chorea laryngis associated with spasm of the expiratory muscles, occurring in a girl ten years of age. There was a barking or crowing cough every five or ten minutes, as also irregular movements of the arm. This cough was absent during sleep; articulation was perfect, and general health good. The treatment employed which had been partially successful was Fowler's solution of arsenic; galvanism, tonics, etc., had failed to relieve.

Dr. LANGMAID: By Dr Knight's kindness he was given the opportunity to see this case; he was struck by the noiseless rhythmic movements of the palate and laryngeal muscles.

It would seem as if no remedies could be of service if medicine proved useless.

In connection with Dr. Morgan's case, he said that in a similar one, which had already been reported in the proceedings of the Society for Medical Improvement in Boston, it was

* See Page 180.

found that the explosion of sound was always preceded by a slight opening of the mouth. The patient was taught to close the mouth in time to prevent the explosion, and this proved to be completely curative.

Dr. INGALS said that he had some years ago seen a patient who presented some of the symptoms mentioned in the paper ; there was no spasm of the vocal cords, but there was rhythmic contraction of the levator palati, with synchronic clicking sounds, which appeared to be due in some way to the action of this muscle on the orifice of the Eustachian tube ; the patient had been sent to him by Prof. E. L. Holmes, of Chicago, on account of the peculiar clicking sounds, and had returned to the latter for treatment ; the result was unknown.

Dr. SMITH referred to a case of spasmodic contraction of the diaphragm, lasting several weeks, which he referred to the same cause although affecting a different set of nerves.

Dr. KNIGHT asked if any Fellow had seen a case reported elsewhere of spasmodic closure of the glottis, as he had not been able to find a case similar to his own in medical literature ; he was very glad to hear of Dr. Ingals' case.

*Discussion on the Papers of Drs. Ingals and Jarvis.**

Dr. S. JOHNSTON referred to a case of laryngeal phthisis, and the only one which had come under his observation, where a cure had been effected. A lady consulted him some years since complaining of a chronic cough. Laryngoscopic examination revealed an infiltrated epiglottis with its under surface studded with puncta, which subsequently coalesced, forming a round ulcer. Physical examination revealed no signs of phthisis.

A spray of sulphate of zinc gr. 1, acid carbolic grs. 3, in solution was used ; and internally a mixture of hyposphosphites of lime and soda with glycerine and infusion of cascarrilla ; there was no application of powders or pigments. In three weeks the ulcer was healed. The patient recently died of diphtheria, and this disease manifested itself especially upon the surface which had been attacked some years before and which had healed.

Dr. DONALDSON stated that he thought persons suffering from

* Dr. Ingals' paper, entitled, "The treatment of laryngeal phthisis," being delayed for the purpose of revision, by its author, will appear in the next number of the ARCHIVES.

Dr. Jarvis' paper will be found on page 187 of this issue.

laryngeal phthisis could be relieved by local treatment, astringent combined with sedative sprays, powders of iodoform, and anti-septic inhalations combined with the general treatment. In case deglutition is painful, the patient should be sustained by the injection of food through small œsophageal tubes. He spoke of a case where he had fed a patient daily in this manner for six weeks. The case apparently recovered, and two years afterward was alive.

Dr. BOSWORTH said it seemed to him that, in the whole question of the treatment of laryngeal phthisis, there is the element of doubt of the correctness of diagnosis. What constitutes laryngeal phthisis; and are not many cases of this disease reported which are nothing more than superficial erosions of the laryngeal membranes? He wished there were some way in which the matter could be decided. In his own view, there was but one morbid process in the larynx which constitutes this disease. This process manifests itself in every case in virtually the same way and runs the same course. It is manifested in three stages: First, the stage of inflammatory thickening occurring in the large majority of cases in the arytenoid cartilages. It constitutes what is generally called the club-shaped arytenoids. This same inflammatory swelling may, however, make its appearance on the epiglottis, where from its location it becomes an exceedingly grave matter, constituting what is called the epiglottic form of the disease. In a certain proportion of cases this swelling develops on the ventricular bands, but never, he thinks, on the vocal cords. In this stage of the disease tubercle is not present, as has been so conclusively shown by Dr. Cohen. In this stage, then, he thought, there should be no question as to the curability of the disease, for he certainly found in his own experience that a cure might almost be promised. The second stage is marked by the development in the swollen membrane of small, rounded gray spots, apparently just beneath the surface. They are easily seen on inspection dotting over the surface. If tubercle is ever inspected by the naked eye, these spots are tubercle. The speaker had studied this process on the tongue, and had observed the evolution of these little masses. He had seen them break down and develop into small points of ulceration, which constitute the third stage. These points extend their borders and then develop the true tubercular ulcer. Now this tubercular ulcer is unmistakable. It is a wasting process superimposed upon the interstitial growth, so that we have the apparent incongruity of an ulcer resulting in a

greater bulk than the original contour of the part. The surface of the ulcer is coated with ropy mucus, never with pus. All cases of this disease which have come under his notice conform to this course. As to the treatment, some years ago he had written on this subject. He insisted then that no application should ever be made which gave pain. Further, the best promise for these cases was to carry out the following : first, cleanse the part with alkaline spray ; second, apply morphine to relieve pain ; third, apply iodoform as a specific in controlling ulcerative processes. By this plan he has seen a number of cases recover, and he believes as the result of treatment. The above plan is to be carried out every day.

Dr. SOLIS-COHEN had reached the room so late that he had heard the last sentences only, and was, therefore, unfamiliar with the train of thought taken in the paper, and hardly prepared to join in its discussion. In reply to a direct question from the President, he stated that in his own experience recoveries from laryngeal phthisis were exceedingly rare, and these cases could not be recognized beforehand. His own view was, that so many cases of tuberculosis of the larynx indicated so many funerals.

Dr. KNIGHT said that he regarded the laryngeal complication a very unfavorable one in pulmonary phthisis. Although an arrest of the laryngeal disease and relief of the local symptoms may occur, the patient goes down hill from the advance of the disease in other organs. Mild treatment, principally cleansing the parts, undoubtedly did oftentimes great service, in relief to the patient and in facilitating the arrest of the local disease.

Dr. ASCH said that his results unfortunately had been the same as those of most of the speakers, and it would afford him great pleasure if there could be discovered a specific treatment for this most unfortunate disease. He feared it had not yet come to light. He had had some cases of extensive pulmonary trouble, in which the laryngeal ulcers were cured, but in each of these there had been some specific trouble, hereditary or acquired, which accounted for the fact.

Dr. LINCOLN said he desired to make a suggestion in regard to the indications for the use of iodoform in cases of laryngeal phthisis which may serve to explain the different opinions entertained as to its utility, and especially the discouraging opinion held by Dr. Ingals as to its advantages. Some ten years ago he published a series of cases illustrating the utility of applications of iodoform in

powder or spray (ethereal solution). He believed that he had then stated that in cases of laryngeal phthisis, iodoform was chiefly useful where there was a solution of continuity, *i. e.*, where there was ulceration, and not where there was a hyperplasia with engorgement of the blood-vessels and dryness of the mucous membrane. He would further suggest as an addition to the mild and sedative spray of carbolic acid, tannin, or solution of morphine, the addition of a few drops of essence of peppermint, two to four drops to the ounce of solution. The constant and universal testimony of his patients as to the comfort derived from the use of this medication is most gratifying, and leaves no doubt as to its usefulness.

Dr. MAJOR stated that if laryngeal phthisis is truly a local tubercular development, it is the result of a tubercular condition of the system. If an indolent ulceration occurring in the tubercular subject, it is the result of systemic depravity arising therefrom. He did not desire to underrate the value of local treatment, but it seemed reasonable to suppose that under any circumstances, whatever would improve the general health and check the development of pulmonary phthisis would also have the same influence on the presence of tubercle occurring in the larynx. It was generally conceded that a certain pressure and moisture of atmosphere was necessary to develop tubercle. Now if the patient were removed to an atmosphere sufficiently dry and rare to hold pulmonary tuberculosis in check, it would have a like good effect on the laryngeal condition.

Dr. DUNCAN had seen many of the cases of laryngeal phthisis in which the laryngeal ulcers were healed by prolonged daily mild applications, mentioned by Dr. Bosworth, and he could bear testimony to the fact that the ulcers disappeared and the laryngeal symptoms were removed; this did not stop the advancement of the pulmonary phthisis, but removed the annoying and painful symptoms in the larynx.

Dr. INGALS, in closing the discussion, said that he was much gratified at the debate which had been excited, and considered that the object of his paper had been accomplished. As to the question of diagnosis raised by Dr. Bosworth, he was not prepared to accept the dictum that the peculiar boggy swelling necessarily accompanied the disease. He thought that when the evidences of pulmonary phthisis were unquestionable, one need not hesitate to pronounce co-existing laryngeal disease as of the same character,

even though the swelling did not appear. But when this swelling existed together with the pulmonary signs, the diagnosis was certain. He noticed, from what had been said, that prolonged mild treatment seemed the most satisfactory, and here the key-note had been struck. His fear that iodoform is of little use in these cases is due to the fact that patients in whom he had used it continuously for a long time had shown no local evidence of change until other remedies had been substituted. The patient he referred to, who had been sent to Colorado, was sent there because of the pulmonary disease, the laryngeal complication being considered unimportant. He believed that the dry and rarefied air of that locality is not desirable in most cases where there is extensive tuberculous ulceration in the larynx.

Dr. JARVIS said that the difference in appearance in the phthisical and syphilitic ulcer is distinctive, and there was no excuse for confounding the red areola of the latter with the pale, grayish appearance of the former. The co-existence of the gray ulcer and the pyriform thickening over the arytenoid with the phthisical pulmonary signs, also tends to confirm the correctness of the diagnosis. Inasmuch as inhalations have no curative effect upon the simple traumatic ulcer in the mouth, he failed to see what benefit could be derived from their use in treatment of the ulcer of laryngeal phthisis. As iodoform so markedly benefited simple buccal sores, so we might find it a valuable application in ulcerative laryngeal phthisis.

*Discussion on Dr. Bosworth's Paper.**

Dr. COHEN said that he regarded such cases as largely hysterical, and the greatest success in treatment under his own care had followed enforced deglutition under the supervision of a competent nurse, himself being present at the earliest attempt.

Dr. KNIGHT remarked that the loss of contractility of the muscles under electrical stimulus in the cases reported, made them distinct from those coming under his own observation. Most of the cases he had had were due to hyperæsthesia, and were overcome by passing bougies, or by the application of astringents and remedies calculated to relieve the hypersensitiveness.

Dr. BOSWORTH said that hysteria was excluded from the diagnosis by the fact that there was sluggishness of the muscle not

* See page 192.

only in respect to electricity but to mechanical stimulation. The hyperæsthesia had been suspected of causing the symptoms, but in some cases there was anæsthesia. In most of them undoubtedly the mucous membrane was unduly sensitive, and there was decided feebleness of the muscle.

Dr. LANGMAID said that if his cases were similar to Dr. Bosworth's, he had always been satisfied with the results obtained by the repeated passage of graduated bougies.

REVIEWS AND BOOK NOTICES.

Hand-book of the Diagnosis and Treatment of Diseases of the Throat, Nose, and Naso-pharynx. By Carl Seiler, M.D., Lecturer on Laryngoscopy, at the University of Pennsylvania, etc., etc. Second edition, thoroughly revised and greatly enlarged, with seventy-seven illustrations. Philadelphia, Henry C. Lea's Son & Co., 1883, pp. 295, small octavo.

The present edition of Dr. Seiler's manual is a great improvement upon the first. Much important matter has been added, the number of illustrations has been increased, and in many instances new, original cuts have been substituted for old ones. There remains yet some work to be done in the classification of diseases, and readjustment of space allotted to the different subjects, before it can be considered a perfect manual.

The part on diseases of the nasal cavities is the most complete and best in the book. It includes modern pathology and treatment (especially the surgical) at length. We find here not only cuts of the instrument for galvano-cautery, and of the Jarvis' snare; but of burrs and drills, and the dental engine, and electric motor to work them. The poorest chapter in the book is that entitled "Functional Disorders of the Larynx," the subdivisions of which chapter remind one of pre-laryngoscopic medicine. They are "Aphonia; causes. Aphonia due to cicatricial adhesion; Aphonia due to paralysis; Aphonia due to the presence of foreign bodies. Laryngeal forceps."

Aphonia is not a disease, but a symptom, the cause of which is now usually ascertainable, and the word should have been long ago relegated to the list of symptoms.

One would be led to infer from the connection that paralysis always caused aphonia, whereas certain forms of paralysis may not modify the voice at all. The whole subject of paralysis in the larynx, so interesting and important, is very imperfectly and

unsatisfactorily treated in this chapter, being despatched in seven pages, nearly the whole of one of which is given to an illustration of electrodes.

We presume that the subject of prognosis has been generally left untouched in order to keep down the size of the book, but we think that the manual would be much improved by touching even lightly on this topic.

As in our experience with the use of head-reflectors a very much better illumination of the larynx is obtained by wearing the reflector over one eye, we wish to remonstrate against the statement of the author, that this necessitates monocular vision. This is not true, unless the reflector is unnecessarily large or imperfectly adjusted.

QUARTERLY REPORT OF LARYNGOLOGICAL LITERATURE.

By GEORGE M. LEFFERTS, M.D.

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ARCHIVES OF LARYNGOLOGY.

TREATMENT OF LARYNGEAL PHTHISIS.

By E. FLETCHER INGALS, A.M., M.D.,

CHICAGO.

SEVERAL papers upon the subject of laryngeal phthisis have at former sessions been presented to this Association, in which the etiology, anatomical appearances, pathology, diagnosis, and prognosis have been so thoroughly discussed, that I may be excused for passing at once to the more changeable and interesting part of the subject, embraced under the head of treatment.

I take up the subject, not with the expectation of completing it, but with the hope of exciting a discussion which may reveal what our science can do at the present day for the mitigation of this dolorous malady.

As it appears to me, three prominent indications are to be met in the treatment:

First: To relieve pain.

Second: If possible to cure the disease.

Third: Failing in this, to so modify the course of the affection as to prolong the patient's life.

Can we meet these indications? Yes. Pain may generally be relieved by topical applications, even though internal medication is of little avail. The second object may sometimes be accomplished by combined topical and internal medication, and in some cases by either of these alone. Lastly, if we do not succeed in curing the disease, in most cases we may at least prolong life.

I have selected from my notes the histories of two cases to illustrate each of these propositions. The cases themselves present no striking peculiarities, and are not materially different from others which have been under my care.

The three objects of treatment I have arranged in what appears to me the order of their importance, but it will be more convenient to change the order in presenting cases.

First: I will present sketches of two cases in which the second indication was fully accomplished, and afterward I will present two histories in which the first, and two in which the third, indications were more or less completely met. The last two will also illustrate the effects of a mode of treatment I have recently adopted which bids fair to be of considerable service.

CASE I.—The following case first came under my observation in February, 1880.

Dr. J. C. G., aged twenty-three, a man of not very robust constitution, had been exposed to cold twelve weeks previously, which was followed by the symptoms of an ordinary subacute bronchitis; subsequently there had been some improvement, but he had never since been quite well. He had lost flesh, was quite anæmic, and his general appearance was bad. I learned that his mother died of consumption. I found the pharynx relaxed and the larynx anæmic. There was a small superficial ulcer near the posterior end of the right vocal cord.

Upon examining the chest I found slight dulness, subcrepitant râles, slightly prolonged expiration, and exaggerated vocal resonance and fremitus over the left apex, as low as the fourth rib.

I prescribed the chloride of calcium with cod-liver oil, extract of malt and whiskey, and recommended a change of climate. Mildly astringent sprays were ordered for topical application.

The patient went South, where he improved for four or five weeks, but he returned in two months, on account of the bad weather and an attack of circumscribed pleurisy.

I found the ulcer on the vocal cord still present, with slight thickening about it, but the cords themselves were clear. The pulmonary signs were much the same, excepting that there were no râles. His temperature was $100\frac{1}{5}^{\circ}$, cough less and appetite fair.

I ordered a continuance of the same treatment, and sent him to Colorado Springs, where he gained seven pounds in six weeks.

I saw the patient again fifteen months later, when the pulmonary signs had much improved, and the ulcer was found to have healed.

But I saw him eleven months later, when the signs of pulmonary disease were much more extensive, and there was a small ulcer at the seat of the former ulceration.

He spent the following winter in California, and I have not seen him for about eight months, but at the last account he complained of no laryngeal trouble, though I judged that the pulmonary disease had advanced.

CASE 2.—W. B., aged thirty-five, printer ; no relation except a cousin had ever had consumption.

He had never been sick, but had always been delicate. There was some reason to suspect hereditary syphilis, but there was no acquired taint. He had lost considerable flesh, but his strength was about normal.

He was troubled with a slight hacking cough, which had lasted two or three years, but he expectorated only a small quantity of muco-pus. Temperature and pulse normal, voice hoarse at times, appetite good, bowels regular, urine natural.

Examination of the larynx showed the left half of the epiglottis swollen, with an oval ulcer on its upper surface, about six millimetres in length by three in width and two in depth.

Chest.—There was slight dulness with prolonged expiratory murmur on the left side, in front, as low as the fourth rib.

I ordered for him the chloride of calcium and cod-liver oil with alcoholics freely, and applied stimulating pigments to the epiglottis.

The topical applications, which were made about once a week, were changed from time to time, during the first six weeks ; afterward I used only iodoform in powder. The general treatment was continued, and at the end of twelve weeks he had gained nine pounds and felt much stronger.

The ulcer gradually healed while his general health was improving, but not at other times ; by the end of the third month it was perfectly well, and it has never returned. The swelling of the epiglottis has nearly disappeared.

In the first of these cases, both of which recovered from the local lesions, there was the characteristic superficial ulcer of phthisis, with decided pulmonary lesions, though without the peculiar pyriform swelling of the arytenoids which we often observe. The local treatment was mildly astringent and had to be left to the patient, by whom it

was very imperfectly applied; therefore, I question whether it was an important factor in the recovery.

In the second case the epiglottis was swollen and ulcerated. It was treated with occasional applications of a solution of morphia, carbolic acid, and tannin; and, for a time, by regular applications of iodoform.

In both cases the internal remedies consisted mainly of the chloride of calcium with cod-liver oil or maltine and alcoholics; but in one, evidently the most important factor in the treatment was removal to the invigorating atmosphere of Colorado, while in the other there was nothing in the surroundings particularly conducive to recovery.

The only common features in the treatment of the two cases were the ingestion of chloride of calcium and alcoholics, and the use of mildly stimulating and antiseptic topical applications, but both show that laryngeal phthisis may be cured when the pulmonary complications in the case are improving.

CASE 3.—C. F. F., aged twenty-three, tailor's cutter. He had been sick for fourteen months, and gave an hereditary history of consumption.

The right wall of the larynx was swollen to about twice its normal thickness. The left wall was less swollen. There was superficial ulceration of the right ventricular band, and the organ was bathed in its secretions.

Physical exploration of the chest revealed dulness, feeble respiration, subcrepitant rales, and exaggerated vocal resonance over the right lung, as low as the sixth rib. There was also some consolidation of the left apex.

I applied to the larynx with a brush, a pigment composed of morphia grs. iv, carbolic acid¹ and tannin, of each, grs. xxx, to four drachms each of glycerine and water.

¹ Dr. Glasgow's experiments with carbolic acid as a local anæsthetic first induced me to use it for this purpose in the larynx. Subsequently, I added a little morphia for the sake of increasing its efficiency, and later, having occasion to use tannic acid in a case where I was already using the carbolic acid, I put it in the same solution.

Frequent use of this combination led me to believe that the tannic acid prolonged the sedative effects of the carbolic acid; therefore, I have since used the combination as just given.

(This pigment will be referred to in the following pages either as the solution of morphia, carbolic acid, and tannin, or as the sedative solution.)

This application caused considerable smarting, which, however, only lasted a few moments, and then the pain in swallowing, of which he had complained, was almost completely relieved.

At first I used the pigment with him in a diluted form, but subsequently in full strength.

The pulmonary disease rapidly progressed, and the patient died about two months and a half from the time I first saw him.

This case illustrates the relief which may be given in the later stages of the malady by topical applications.

The treatment was only given at irregular intervals, but it was always followed by decided relief from pain, which induced the patient to beg for it even after he knew that he could only live a few days.

CASE 4.—J. G., aged twenty-eight, butcher.

The patient came to me complaining of a cough and a pain in swallowing. The cough had existed for about two years. He was somewhat emaciated, but was able to attend to his business.

Upon examination of the chest I found slight consolidation of the apex of the left lung.

Examination of the larynx revealed a large ulcer involving and extending above the left ventricular band. The ulcer was single, and about two and one half centimetres in length, by one and a half centimetres in breadth, at its widest part. There was no pyriform swelling of the supra-arytenoid tissues, but the symptoms and the physical signs left no doubt as to the phthisical origin of the ulcer.

To relieve the pain in this case, I applied with a brush the solution of morphia, carbolic acid, and tannin, and from time to time stimulating solutions of sulphate and chloride of zinc.

At the same time the patient was given chloride of calcium, tincture of the chloride of iron, bitter tonics, and alcoholic stimulants.

For about five weeks he gradually improved in strength, and during this time nearly one half of the ulcer had healed.

But then his appetite failed, the stomach became unable to tolerate medicine, the healing process stopped, and deglutition became so painful that he could not eat excepting after the application of the sedative solution already referred to, when he was enabled to swallow comfortably and would eat heartily.

The anæsthesia of the larynx would continue in this case for from twelve to forty hours after the sedative application.

From the time the stomach became disordered, the disease in the lungs rapidly advanced, and the condition of the larynx became worse.

At the time of his death, about two months later, there was extensive disease in the left lung.

In this case I was enabled to accomplish the first object of treatment, and I have no doubt that the relief of pain, by allowing the ingestion of food, added several weeks to the patient's life.

At first topical applications seemed to promote the healing process, but this only continued while the general nutrition remained fairly good.

CASE 5.—Mrs. J. E., aged thirty-nine. I saw the patient first February 6, 1883, when I obtained the following history. She stated that last July she had rheumatic pleurisy, upon recovering from which she first noticed a peculiar pricking sensation at the base of the tongue, and occasional pain in the ears.

About four years previously, she had some pulmonary trouble, and about sixteen months ago, she had a slight hemorrhage, but otherwise she had always been well.

Her appetite and strength were fair, but she was failing from loss of rest, caused by the tickling in her throat, and cough, which often kept her awake most of the night. She was subject to frequent attacks of dyspepsia. Some relief from the tickling had been obtained by the use of opiates, but this increased her digestive disturbance. She experienced considerable trouble in respiration, particularly when dyspeptic, but she had but little dyspnœa at other times. She had a hacking cough, and expectorated simply mucus.

I found the epiglottis slightly thickened, with a large ulcer on its lower surface.

The lower part of the left ventricular band stood out sharply over the cord, and above it the whole left side of the larynx was occupied by a large grayish ulcer continuous with that on the epiglottis.

Examination of the chest revealed slight dulness over the very apex of the left lung, and exaggerated vocal resonance as low as the second rib, with a few fine mucous rales.

I applied locally a powder of equal parts of iodoform and boracic acid, and followed it by the pigment of morphia, tannin, and carbolic acid ; and I gave her for a home spray a solution of carbolic acid and sulphate of zinc, of each gr. ij to the ounce of water.

The iodoform and boracic acid and the sedative pigment were applied nearly every day for about two weeks. This relieved her cough, but had little or no effect on the ulcer.

Iodide of potassium in full doses was also administered, but with no good result. I also gave her for home use a spray of a solution of the bichloride of mercury, $\frac{1}{16}$ of a grain to the ounce, but it was abandoned on account of the pain which it caused.

After using the iodide of potassium about two weeks I gave her in its stead ten grains of the chloride of calcium in syrup of sarsaparilla, to be taken with cod-liver oil after each meal. She could not take alcoholics.

On this treatment her general condition began to improve.

At the end of four weeks, during which time iodoform or iodoform and boracic acid had been applied almost daily to the ulcer with occasional trials of the nitrate of silver and the regular application of a small quantity of the solution of morphia, carbolic acid, and tannin, either by spray or brush, I could see no perceptible change in the appearance of the ulcer, though there was less swelling of the epiglottis and her cough was much better.

Having had most excellent results in the treatment of erosions of the nostrils from the topical applications of the volatile essence of eucalyptus globulus (which is also known as eucalyptol), I determined to try this remedy in the larynx, notwithstanding its pungency.

Upon applying it on a pledget of absorbent cotton to the ulcer, I found that it caused only slight smarting, but severe choking ; however, the latter soon passed off, and the smarting was at once relieved by a spray of the sedative solution. This was followed each time by iodoform or iodoform and boracic acid.

This treatment was continued daily with such good results, that at the end of a week the ulcer on the under surface of the epiglottis was healing at its edges and appeared improved over its whole surface. At the end of three weeks the ulcer was still healing, and the patient's general condition was so much improved that she was able to walk two miles with but little fatigue. She then had an acute attack of indigestion which stopped further

improvement for about a week. Subsequently she improved, and at the date of this writing is doing fairly well.

In this case, there was a single large ulcer with no swelling of the ary-epiglottic folds, yet the symptoms, signs, and history, with the absence of even the slightest proof of former scrofulous or syphilitic taint rendered the diagnosis sufficiently certain.

The morphia, carbolic acid, and tannin speedily relieved her cough, but solutions of nitrate of silver, chloride or sulphate of zinc, and sulphate of copper, associated with the insufflation of iodoform, or iodoform and boracic acid, had no effect in stimulating the healing process in the ulcer; though, as a consequence of the relief from cough, combined with the good effects of internal treatment, her general condition greatly improved.

CASE 6.—C. F., aged thirty-three, clerk. The patient came to me last February, stating that in January, 1882, he had pleurisy, and during the course of the disease had suffered from an inflammation at the base of the tongue, which was accompanied by considerable pain, that soon extended to the left ear. About two months later he consulted a physician, who injected something into the larynx with a syringe, from which he became permanently hoarse. Shortly afterward he went to Colorado, where he remained two months. After his return, in the early part of June, he consulted a physician, who gave him tonics and inhalations twice a week, which treatment was continued six months. Afterward, until the time I saw him, he had used a steam atomizer with carbolic acid, tannin, sulphate of zinc, etc., and had taken various nostrums, without improvement.

The patient informed me that his ancestors had been long-lived, and I could discover no hereditary predisposition to disease. Previous to this attack he had not been sick for twenty years. Since the beginning of this attack he had failed greatly in weight and strength, and he had recently been troubled with cough, night-sweats, and dyspnœa on slight exertion.

His pulse was 120; temperature, $100\frac{1}{2}^{\circ}$ F.; appetite poor and digestion imperfect.

The chest was narrow and flat, but there were no signs of pulmonary disease, excepting a slight diminution of resonance

over the apices of both lungs, and some harshness of the respiratory murmur.

I found the uvula slightly elongated, pharynx moderately relaxed, and glands at the base of the tongue a little enlarged, but no anæmia of the parts. The epiglottis was slightly thickened, and upon its surface were several small yellowish-white patches resembling the early stages of herpetic eruptions. The ary-epiglottic folds were swollen. There was extensive superficial ulceration of the ventricular bands, vocal cords, and posterior commissure.

The patient was given the chloride of calcium, tincture of the chloride of iron, and cod-liver oil, and alcoholics freely. I applied to the larynx the solution of morphia, tannin, and carbolic acid, following it by a powder of equal parts of iodoform and boracic acid.

At the end of six weeks the patient had very decidedly improved in his general condition. There was less cough, much less dyspnœa, and the swelling of the larynx had considerably subsided; but there was still considerable expectoration, the ulcers showed no signs of healing, and the yellowish patches remained the same on the epiglottis. I then began the use of eucalyptol.

Four or five days after the first application it was noted that very decided improvement had taken place in the superficial ulcers, and the patient reported that he was resting better than he had been for many months. The muco-purulent expectoration was also much diminished. The patient is still improving.

In this case topical applications speedily relieved the cough and his general condition improved, but no improvement in the ulcers could be discovered until I used the eucalyptol.

I do not dare to hope for complete recovery in either of the preceding cases, but so far the eucalyptol has been more beneficial than other topical applications.

In these cases the constitutional treatment had been much the same before they came under my care as afterward, and as the ulcers were not healing before the topical applications were made, it seems fair to give the local remedies the credit; but we cannot be certain whether the improvement was due to the alterative or stimulating effects

of any particular local remedy, or whether it was mainly due to the rest afforded by the relief from cough.

In case 5 the cough had been relieved long before the eucalyptol was applied, though there had been no perceptible change in the surface of the ulcer, and in case 6 the improvement was very much more rapid under the use of this remedy; therefore, although we cannot properly base an opinion of its value on these cases we may at least be encouraged to give it a thorough trial.

In most cases of laryngeal phthisis I have used iodoform persistently; but it has given little, if any, relief from pain, and when used alone it has entirely failed to produce perceptible curative results; therefore, I fear it is of little value for this purpose.

In conclusion, I think it is well established:

First. That we may meet the first indication for treatment better by topical applications than by other means, and we may confidently expect to give our patients great relief for a considerable length of time.

Second. A limited number of cases of laryngeal phthisis may be cured by local and general treatment, and the former is an important factor in obtaining this result.

Third. In many, even of the fatal cases, life may be prolonged for several weeks by topical applications which obtund the sensibility of the part, so as to spare the patient the exhaustion incident to pain and the irritating cough, and at the same time allow the ingestion of food.





Fig 1



Fig 2



Fig 3

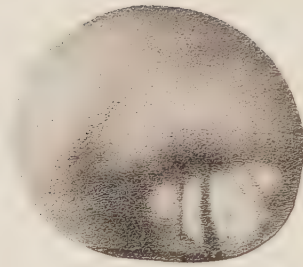


Fig 4



Fig 5

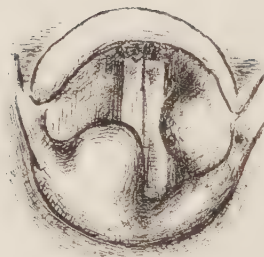


Fig 6

*Drawing of the same
laryngoscopic image
as that of which
photograph shown in
Fig 5 was taken*

ON PHOTOGRAPHING THE LARYNX.*

By THOMAS R. FRENCH, M.D.,

BROOKLYN.

(With plate and two wood-cuts.)

AT the last session of this Association, I presented several photographs of the larynx taken with the assistance of Mr. George B. Brainerd, of Brooklyn, only a few days before the meeting.

Since then we have made numerous experiments with various forms of apparatus, all of which have been constructed by Mr. Brainerd.

This gentleman's assistance has been simply invaluable. He is a civil engineer by profession, and became interested in the larynx and laryngoscopy immediately after I had incised an abscess in his larynx, which had begun to interfere with respiration. I soon succeeded in teaching him to examine his own larynx, and seeing that he was much interested in the study of its movements, and knowing him to be an expert amateur photographer, I broached the subject of photographing the laryngoscopic image. He entered into the solution of the question with the spirit of scientific inquiry, and, because of his untiring industry and great ingenuity, has been mainly instrumental in enabling me to present to-day these photographic pictures of the interior of the larynx.

We demonstrated last year that the larynx could be photographed, but with that process the throat-mirror and camera were in fixed positions, and the head of the patient had to be drawn up to the mirror and arranged to suit its position, which of course necessitated very tolerant fauces in order to succeed. We realized that photographs taken

* Read before the American Laryngological Association, session 1883.

in this way could have but a limited value in the study and demonstration of diseases of the larynx, and, therefore, our objects this year have been :

1. To simplify the procedure, and so convert that which before was only an interesting experiment into an operation of practical utility.

2. To take a better photograph.

In the fulfilment of both of these objects we believe that we have been successful, for, as I shall show farther on, we have adapted a hand-camera, with which the larynx of persons having only fairly tolerant fauces can, in the majority of instances, be photographed by any laryngoscopist; and I have for presentation to-day a number of photographs taken with the stationary apparatus, which are an improvement on the results of last year.

The hand-camera will not produce as large or as satisfactory pictures as the stationary apparatus, but, as the results of some of the work done with it will show, they are clear enough to make out the various structures of the normal larynx, or diseased conditions if they exist.

The photographs shown last year were taken with a camera about the size of a segar box placed upon a tripod, and with the throat-mirror attached by a flexible rod to the camera. Unaided sunlight alone was used for illumination. The best photograph taken with that apparatus is probably familiar to all the Fellows of the Association. The sources of illumination used in the experiments made this year were unaided sunlight, condensed sunlight, oxyhydrogen, magnesium, and electric lights.

With unaided sunlight plane reflectors were used. In order to increase the power of illumination from sunlight, and at the same time to avoid material increase of heat, Mr. Brainerd devised and constructed a condenser, which answers the purpose so well that it deserves a description. It consists of a box 10 inches long, in one end of which is placed a double convex lens 5 inches in diameter, which has a focal distance of 13 inches. At the outer end of a short tube fitted into the other end of the box is a plano-concave lens $1\frac{7}{8}$ inches in diameter. This is placed an inch

or so inside of the point of focus of the double convex lens, and in that position intercepts the converging rays, and makes them parallel or divergent, according to its distance from the first lens.

When sunlight is made to pass through these lenses the result is one of the most beautiful and powerful lights, without material heat, that I have ever seen. Both light and heat can be controlled by diaphragms of varying size, to be introduced between the lenses when the sun is very bright.

With this condenser both the plane and concave reflectors were used. The electric-light used was produced by one of Wood's 6,000 candle-power focussing lamps, which the Fuller Electric Light Co. courteously placed at our disposal for our experiments. A 2,000 candle-power Fuller lamp, such as is used for street illumination, was suspended from the ceiling by a rope and pulleys for our use, but the light produced by it was found to be too small and weak to illuminate all of the larynx at the same time. It was therefore discarded without experiment, and Wood's powerful focussing lamp without the reflector substituted.

With this light reflected from both plane and concave reflectors, sixteen exposures were made with the small camera. The best results were obtained from the use of the plane reflector; but the photographs taken in this way were no better than those resulting from the use of unaided sunlight, and not as satisfactory as those obtained when condensed sunlight was employed.

The illuminating power of this light could certainly have been increased by the use of a condenser, but the experiment was not made, for the light as it was, proved to be very trying and dazzling to the eyes of both Mr. Brainerd, upon whom the experiments were made, and myself.

The experiments with sunlight were made with a variety of cameras, all of which, with the exception of two, have been discarded. Of these, one is a stationary camera and the other is intended to be held in the hand while the photograph is being taken.

The stationary apparatus consists of two tubes, one inch

in diameter, moving one within the other. The lens, a plano-convex achromatic of five inches focus is set in the distal extremity of the outer tube, and an ordinary plane or concave reflector is suspended in front of it; upon the side of the tube an adjustable arm is fixed, which carries the throat-mirror; at the other end of the inner tube is the exposing apparatus, consisting of a perforated drop shutter and a slide for the holders containing the sensitive plates. The whole is fixed to a flat wooden base.

Here are a number of photographs (see plate facing page 235) of the larynx taken with this apparatus, which are presented to show what can be done. While they are much better than those of last year, they are of no great practical value, for in order to secure them the patient and camera must be placed in fixed positions, which precludes the pos-

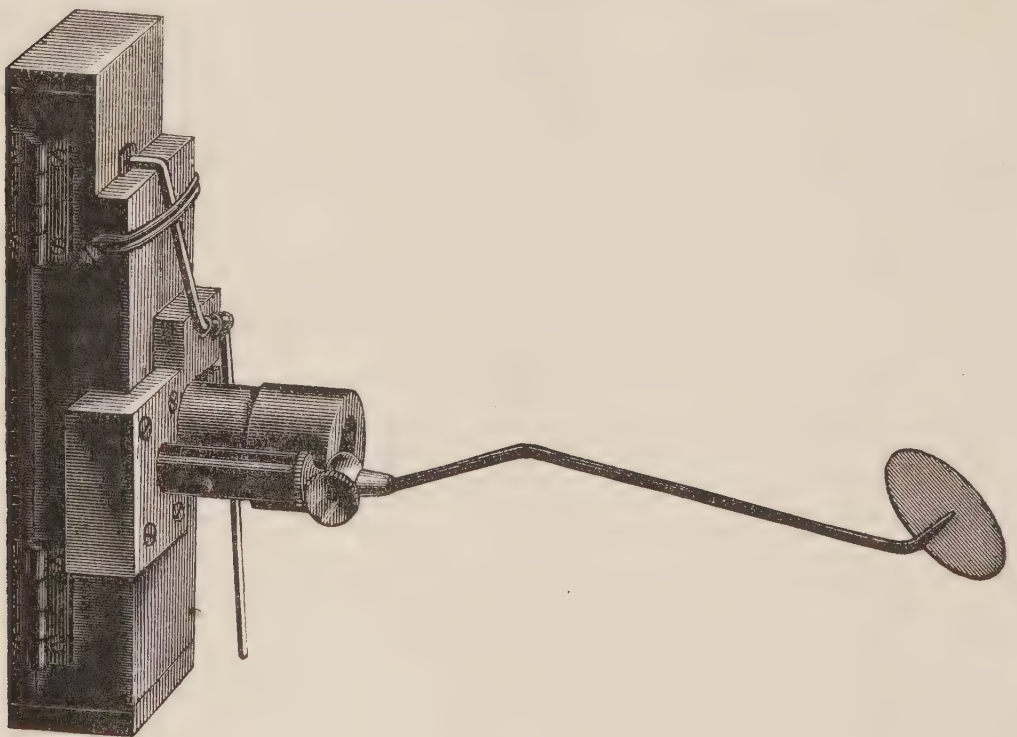


FIG. 1.

sibility of using the apparatus upon a large majority of patients who come under observation.

(Figs. 1, 2, 3, and 4 of plate are artotype reproductions of the best photographs taken with the stationary camera exhibited at the meeting at which this paper was read. The reproductions are, of course, not as clear as the photographs.)

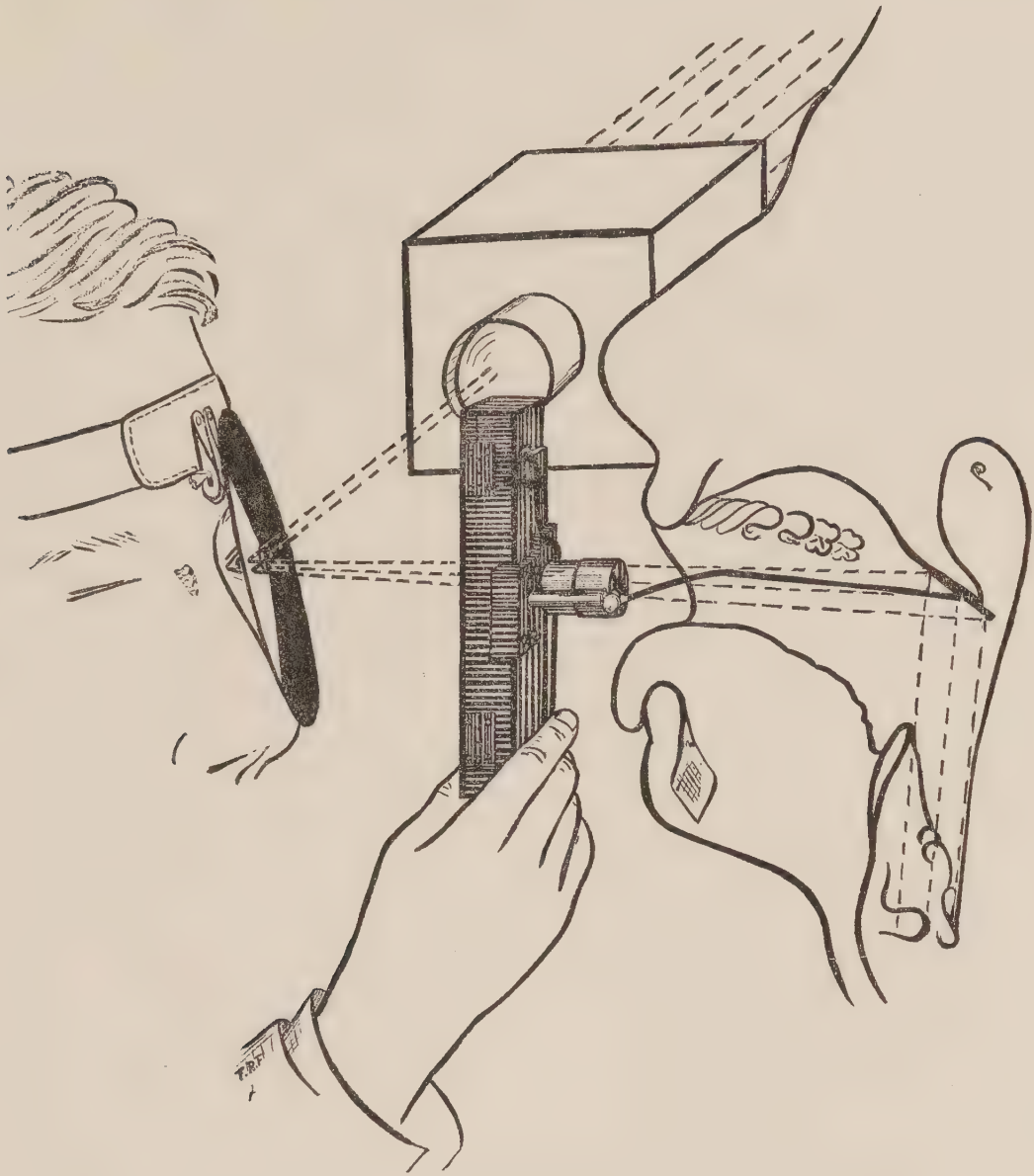


FIG. 2.

The small camera (Fig. 1) is intended to be held in the hand while the picture is being taken. It consists of a box $4\frac{1}{2}$ inches long, $1\frac{7}{8}$ inches wide, and $\frac{3}{4}$ of an inch in thickness. The back opens upon hinges, and admits of the introduction of either the ground glass or plate-holder. On the anterior face, a tube $1\frac{1}{8}$ inches long is attached, in the outer end of which the lens is placed. This lens has a focus of $1\frac{1}{4}$ inches.

At the side of the tube a part of the handle of a throat-mirror is fixed, and into that the shank of a throat-mirror is passed and fastened by a thumb-screw. The shank of the mirror is somewhat curved, and is attached to the side of

the frame holding the mirror. The object of this is to allow of the lens being held opposite any part of the opening of the mouth, and also to prevent the possibility of a shadow being cast upon the mirror.

In the front part of the box is a shutter made of lead, and perforated with a hole just the size of the lens. The shutter is held in position by a lever acting as a key, on the anterior face of the camera.

The apparatus is used in the following manner:

I have sketched upon this plate (Fig 2. shows the plate reduced) the relative positions of patient, observer, camera, and condenser in the procedure about to be described, a reference to which will, perhaps, aid you in understanding the description.

A reflector, either plain or concave, attached to a head-band, is arranged over the left eye so that the pencil of sunlight from the solar condenser is received upon it and thrown into the mouth. The patient, with the head inclined slightly backward, now protrudes the tongue and holds it well out between the forefinger and thumb of the right hand.

The throat mirror with camera attached, held in the right hand of the observer, is placed in position in the fauces, and the light adjusted so that the larynx can be seen, with the observer's left eye, to be well illuminated.

If, now, the tongue does not mound up above the level of the lower edge of the lens, and the lower edge of the mirror, it may be taken for granted that, when the plate is exposed, the picture received upon it will be nearly the same as that seen with the left eye in the throat-mirror. The photograph is taken by pressing upon the key with the index finger; this releases the shutter which, in falling, makes an instantaneous exposure, amounting, perhaps, to one seventh of a second.

In using condensed sunlight with the small camera, it is important to throw the circle of light from the inner side of the reflector—that nearest the nose,—for in this way a part of the larynx exposed to the lens of the camera may be illuminated, which cannot be seen with the eye. To insure

this, it is best to cover the outer half of the reflector with black silk.

On account of the parallax or displacement of the image due to the difference in point of view between the eye and the camera, some skill is necessary in managing the illumination, so that the part which it is desired to bring out will be exposed to the lens if not to the eye.

Here are a number of photographs taken with this, the small camera, showing normal and diseased larynges in various positions. Some of them are so small—the pictures of the larynx themselves measuring only about $\frac{1}{8}$ or $\frac{3}{16}$ of an inch in diameter—that they cannot be satisfactorily seen without the aid of a magnifying glass. In order to make them clear to the unaided eye it is necessary to enlarge them. On account of the short time which has elapsed since these photographs were taken, satisfactory enlargements could not be obtained. (Fig. 5 of plate is an artotype reproduction of one of the many photographs taken with the hand-camera exhibited at the meeting at which this paper was read. It does the photograph great injustice, but is shown because of the fact that it is *the first photograph taken of the image of a diseased larynx*. It represents perichondritis in laryngeal phthisis. Fig. 6 of Frontispiece is a reproduction of a photograph of a portion of the rhinoscopic image taken with the hand-camera. It shows hypertrophied membrane, due to catarrh, on both sides of the septum, and portions of the middle and inferior turbinated bones of the right side.)

These photographs are not as large or clear as desirable, but allowance must be made for the fact that an ordinary plano-convex achromatic lens was used, which was not constructed with any special reference to photography, and the pictures taken with it bear about the same relation to those that would be produced by a regularly constructed photographic lens, that the tin-type of the itinerant photographer bears to the imperials of a Sarony or a Kurtz.

It may be asked, Why have we not used the best lens that could be obtained? to which we would answer that our plan from the first has been: first, to attain the result

aimed at, and this has only just been reached; and then to eliminate objectionable features and perfect the product.

Any want of sharpness in the views must be attributed to the imperfection of the lens or inaccuracy in focussing, for the closest inspection will not show any duplication of lines, such as would result from a movement of the parts during exposure.

Experience has shown that the apparatus may be improved in several ways. By adding a larger lens the size of the pictures could be doubled, without increasing the size and weight of the present camera more than one third.

Mr Brainerd suggested the following, and had time allowed, the suggestions would have been carried out:

The use of a wide-aperture combination lens to flatten the field and increase the sharpness of the image. The addition of a micrometer for more delicate focussing, and to contribute to the sharpness of the image. The use of an exposing drop to be actuated by a spring instead of by gravity, in order to shorten the exposure when the light will warrant it. This might be placed in front of the lens to protect it from the breath of the patient. Setting the lens on one side of the centre of the plate to give a more nearly coincident vision of eye and camera.

The development of the plates is a very simple matter, and a knowledge of it can be readily acquired, so in taking pictures with the hand-camera the services of a photographer are not necessarily required.

The results of the experiments made this year may be summed up as follows:

1. Better photographs have been taken with the stationary apparatus than those of last year.
2. A camera has been so adapted that it can be held in the hand and quickly placed in position. This makes it possible to photograph the larynx in patients whose fauces are only moderately tolerant.
3. The photographs are taken instantaneously, by a drop shutter, thus making it possible to photograph the larynx, even if the parts are in motion.
4. The parts reflected in the mirror are alone exposed,

thus avoiding the confusion which arises when the mouth and lips are included and out of focus.

5. As the apparatus is so small, and the exposure is made instantaneously, if desirable, photographs can be taken without the patients being aware of the object of the procedure.

6. Several diseased conditions of the larynx have been photographed. This is an important step in advance, for we believe that it is the first time that it has been accomplished.

7. Portions of the rhinoscopic image have been photographed. These photographs show, among other things, hypertrophy of the mucous membrane covering the posterior portion of the nasal septum.

So far as we are aware, this is the first time that any portion of the posterior nares has been photographed.

REPORTS OF FIVE CASES OF CONGENITAL TUMOR OF THE LARYNX.

By H. A. JOHNSON, M.D., LL.D.,
CHICAGO.

THESE cases are reported to the Association for the reason, as it seems to the writer, that, with the exception of the monograph of Causit, published in 1867, the subject has not received the attention at the hands of laryngologists which it deserves. It seems probable, also, that congenital troubles of this character escape detection. In the absence of articulate speech the abnormal condition of the voice is not always recognized. It is quite possible that cases of laryngeal tumor are occasionally taken for thymic asthma, and, possibly, for cardiac malformation.

For the histories of the first two cases I am indebted to my friend, Dr. M. Manheimer, of Chicago.

CASE 1.—April 20, 1880, C. H., a female, was brought to Dr. Manheimer for examination and advice. The father was consumptive, the mother was anæmic. The child was at the time of the consultation ten weeks old. The face was livid; extremities cold; pulse small, 130, and very feeble. From birth the child had breathed with great difficulty. There had been hoarseness and spasm. The little patient died on the 23d of April, three days after the consultation. Upon autopsy there was found in the larynx a papillomatous tumor, nearly filling the glottic chink.

CASE 2.—C. M. was brought to Dr. Manheimer for a difficulty in the throat. Both parents were healthy. The child was a female, strong and well in all respects, with the exception of the throat trouble. She was then sixteen months old. She had suf-

ferred from birth with hoarseness and paroxysms of dyspnœa. The symptoms were not uniform. At times there was great difficulty of breathing, and this was succeeded by an interval of nearly normal respiration. Spasm was especially noticed during and after crying. Only once did the voice become entirely extinct. The heart, lungs, and abdominal organs were all sound. Dr. M. diagnosed laryngeal tumor, congenital, and suggested an effort to remove it by operation. An engagement was made for the writer to see the patient with Dr. M. In the meantime whooping-cough was contracted. This was mild in character, and did not give rise to any alarming symptoms. During one of the paroxysms of coughing, the little one expelled a mass of reddish matter, which, upon examination, was found to consist of a papillomatous growth covered with mucus. The tumor was of the size of a small bean (a lentil). From this time the hoarseness disappeared, and with the recovery from the whooping-cough there was no more disturbance of respiration. The case was cured. The voice has continued good.

CASE 3.—In the winter of 1876-7, Dr. Manheimer referred to me for examination the child of Mr. and Mrs. F., of Chicago. The little one was three years old, well grown, and of healthy appearance. The parents were both healthy. I learned the following history: From birth the cry was unnatural, hoarse, and croupy. There had also been paroxysms of dyspnœa. These attacks became more frequent and more severe as he grew older. Dr. M. and myself both recognized evidence of a tumor in the larynx, and believed that it was congenital. In the spring of 1877, the dyspnœa became more constant, and as there had been nothing accomplished in the way of removal of the growth, it was thought best to perform tracheotomy. This was done by the writer in April, 1877. The relief to the dyspnœa was complete, and the patient regained his general good health, which had been greatly impaired by the almost constant struggle for breath. During the next year there was no progress made in the effort to remove the tumor through the natural passages. In the meantime there had begun to develop spasm, though the canula was free, and, so far as we could judge, there was no obstruction in the trachea. These spasms finally became so alarming in character, that in March, 1878, I performed thyrotomy. A large papilloma filled up the larynx. It extended into the sub-glottic space, and seemed to make great pressure upon the walls of the larynx. It seemed probable that

this pressure was the cause of the spasm, as there was no other explanation to be found. The patient did well for the next three days, when, upon exposure, he contracted a pneumonia from which he died on the eighth day after the operation. That the pneumonia was not due directly to the operation, seems to me to be probable for the reason that, on the third day after the thyrotomy, I called and found the little fellow standing by a window, with his hands on the glass. The wind was blowing quite strongly. It was in March, and the day was decidedly uncomfortable. The patient had worn a canula so long, that the mother did not seem to recognize any new element in the case. There was no fever at the time of my visit, and the patient had a fair appetite.

This case was reported in the first volume of the *ARCHIVES OF LARYNGOLOGY*. It is reproduced here for the reason that it illustrates the usual symptoms of these congenital growths.

CASE 4.—On the third day of January, 1879, I was consulted in the case of a child of Mr. and Mrs. S., of Chicago. From the physician who attended the mother at the time of the birth of the child—Dr. Adams—I learned, that the voice was hoarse at birth. The cry was never natural. For some months before the time of observation, there had been almost constant dyspnœa with spasms of the glottis. This had led another physician to pronounce the case one of croup, and when Dr. Adams was called the little one was under treatment for that disease. The parents stated that the dyspnœa had been much worse for the last few weeks. The spasms had become alarming. At the time of the examination the lips were blue, and the pulse weak and small. There was considerable emaciation, and the struggle for breath was constant. I became satisfied that there was a tumor in the larynx, though the extreme depression of the little patient deterred me from making any attempt to examine the parts with the laryngoscope. Tracheotomy was performed by Dr. Adams with the result of giving relief to the distressing symptoms. Death followed within the next twenty-four hours. The post-mortem revealed what I had expected, a papillomatous tumor blocking up the glottis, leaving only a small opening through which respiration was accomplished.

CASE 5.—On the 20th of June, 1879, Mr. and Mrs. F. M. S., of Elkhart, Indiana, brought to me for examination and advice a

well-grown male child, aged fifteen months. From the parents I learned the following facts : at the time of birth it had a rough, hoarse voice or cry. They likened it to the voice of a boy at the age of puberty. There was not loss of voice, but this peculiar cry was persistent, and as the child grew it became more marked. At the time of examination the general condition of the patient was good ; it was well nourished, and in every other respect except the peculiar voice and the phenomena to be noticed, appeared healthy. As it amused itself with its toys, it made a sort of cooing noise, like that often heard from other children in similar circumstances. The respiration was but slightly disturbed, but on careful observation the expiration was found to be a little embarrassed. On attempting to cry the voice became entirely extinct, and there was great difficulty in expiration. During sleep the breathing was not normal, the child "snored," as they stated it. Expiration was also prolonged. I diagnosed laryngeal tumor, congenital, and probably papilloma. As there were no urgent symptoms demanding immediate operative procedure, I advised that the child be taken home, and that at some future time an effort be made for the removal of the growth. If in the meanwhile the dyspnœa should become constant, I advised that tracheotomy be performed.

About the 1st of June, 1880, I received a letter from the father, living then in the State of New York, asking further advice. I quote from his letter : "Now the tumor has evidently enlarged very much ; breathing is very labored, so much so that we feel alarmed lest he may suffocate. Now in your estimation, from the circumstances of which you made a record, could the tumor enlarge sufficiently since your examination to place him in a critical condition ? and would you advise that the operation of tracheotomy be performed at once ? The boy is now twenty-five months old." I was also asked for a reference to some physician in the East, as it was more convenient for them to take him to New York, for instance, than to bring him to me. I wrote a statement of the case as I found it at the time of my examination, and advised that they consult Dr. George M. Lefferts, of New York City. June 20, 1880, I received from Dr. L. a letter in which the further history of the case is given.

Dr. Lefferts says :—"Mr. S. brought the child to New York with dangerous dyspnœa, and urgent laryngeal spasms at night. I examined it laryngoscopically, and recognized the complete blocking up of the larynx by papillomatous growths. The child

could be easily examined. I recommended tracheotomy at once, and explained to the parents the necessity of a thyrotomy at a future date. The tracheotomy was performed on the 10th of June. The child did unusually well until the 13th, when it developed the early signs of pneumonia; on the 14th, consolidation of the lower lobe of the right lung and crepitant and mucous rales over the whole of the left. Death at 10 P.M., June 14th. Autopsy, June 15th. Larynx filled by papillomatous growths, fringing the whole of the vocal cords and lying at the base of the epiglottis and the interarytenoid commissure. Only opening for the respiratory current posteriorly at the cartilaginous glottis, and very small.

"I am very sorry that I cannot communicate a better result. The case was one of great interest, the growth being probably congenital. I anticipated being able to relieve it completely by the thyrotomy. All precautions were taken after the tracheotomy to guard against lung complications, but unfortunately without avail. The case and the result of the autopsy substantiate your early diagnosis most fully."

The spontaneous expulsion of the tumor in case 2 is interesting in connection with observations to the same effect made by others. I have seen three cases in adults in which the same result has followed a violent fit of coughing. I have also seen several cases of papilloma in which the patients or their attendants ascribed the growth to whooping-cough.

LARYNGEAL PARALYSIS FROM ANEURISM.

By WILLIAM PORTER, M.D.,

ST. LOUIS, MO.

THE indications of intra-thoracic aneurism are by no means always plain. How often does the interrogation point follow the record of the diagnosis in our case-books, and we ask help of time, that most venerable unraveller of our knotty problems!

In three cases, during the last two years, the laryngoscopic evidences were very valuable to me, and I the more readily present the histories to this Association, because in each the laryngeal symptoms were the first from which the patient sought relief.

CASE I.—M. S., æt. forty-two, railroad agent, was first seen early in 1881. His chief subjective symptoms were slight dyspnœa and hoarseness. His voice was uncertain, at times some tones higher than natural, and often harsh and rough. Until within two months he had been in good health, excepting several mild attacks of rheumatism. The increase of voice difficulty had been gradual, and he had been under treatment for chronic laryngitis.

After the most careful examination of the chest, I could detect nothing abnormal, except a little increased bronchial respiration on the left side. There certainly was neither bruit, thrill, nor increased area of dulness.

With the laryngoscope, the left vocal cord was found to be fixed in nearly the median line. There was also some congestion, probably from the increase of effort required in speaking. During phonation the right cord was advanced beyond the median line so as to meet the fixed cord of the other side.

There was evidently pressure upon the trunk of the left recurrent nerve, destroying the function of the filaments supplying the abductor of that side. Further than this, the pressure did not completely involve the nerve, as the adductor filaments were uninjured.

The diagnosis of aneurism of the aortic arch was strengthened by the sphygmographic tracing of the left side. While on the right side the record was normal, on the left were very imperfect secondary waves,—a sloping up-stroke, and diminished impulse. This seemed to limit the site of the lesion to the transverse portion of the arch.

It is needless to narrate fully the progress of the case. In a few months the presence of aneurism could be demonstrated by direct examination. As the pressure became greater an interesting change took place in the larynx. In place of the fixation of the left cord near the median line, it gradually receded to the “cadaveric position” of Ziemssen, and the dyspnœa was relieved, though the voice became weak and at times inaudible.

The patient died, from rupture of the aneurism, in the autumn of the same year at his home in Ohio.

CASE 2.—E. H., an officer, forty years old, and robust in appearance, consulted me last year on account of difficulty in speaking and shortness of breath. These symptoms had come on rather suddenly, after violent exertion, two weeks previously.

There was very plainly to be seen a fixation of the left cord in the median line with a certain diminution of tension. When resting, respiration was carried on easily, but upon exertion it became more difficult. The sphygmograph gave tracings similar to those made in the preceding case, although there was absence of direct physical evidence; the diagnosis made was aneurism of the transverse arch.

So great has been the progress of symptoms, that at this date the correctness of this opinion is readily proven; the thrill, increase of area of dulness, and aneurismal bruit are all present. The laryngeal condition is but little changed.

CASE 3.—In April of the present year I saw Mr. F. J. E., a cotton-planter, æt. thirty-four, whose chief symptoms were harshness of voice and at times shortness of breath, with marked stridor. Until three months before he had been well, though fourteen years ago he had had syphilis. With the laryngoscope the right cord was seen fixed nearly in the median line, and slightly congested; otherwise I could see nothing abnormal.

Over the site of the ascending aorta there was some thrill with impulse, and a slight bruit, which was conveyed along the right subclavian, though I could not hear it in the region of the left. An increased area of dulness was well defined. The bronchial respiration was unusually distinct over the lesion, the sounds being better conducted by the denser tissue, though there seemed to be no obstruction to respiration.

The sphygmograph showed the deviation from the normal usual in cases of aneurism. In this case, however, the record of each radial artery was altered, the change being to some extent greater on the right side where the dicrotism had almost disappeared.

This evidence and the direct physical signs led me to believe that the laryngeal paralysis was due to pressure upon the right recurrent nerve by an aneurism, and that of the ascending aorta or of the arteria innominata close to the aorta. Certainly it is not the rule to find pressure upon the right recurrent nerve from aneurism in such location. Still there was at least partial proof of the aneurism; it was either of the ascending arch or near enough to affect the circulation of both sides; and there was no other apparent cause for the laryngeal paralysis, which was of the same side as was the chest lesion. I cannot account for the paralysis except in this way; and I have thus far received no information of change in the symptoms as here given.

In the three cases reported it is somewhat interesting that in all of them the laryngeal condition was the first subjective indication of grave trouble, though in the last there was corroborative direct evidence of the thoracic lesion. In the other two there were neither subjective nor objective indications of aneurism at the first examination, except that given by the laryngoscope and sphygmograph. It is not unknown that aneurism may exist without an appreciable bruit or impulse, but both of these as well as increased area of dulness are generally present when there is lesion enough to produce pressure upon either recurrent nerve.

In all of these cases, as is generally true, the abductor filaments of the recurrent nerve were early affected; in the first, however, the abductors were afterward involved, as indicated by the change in position of the cord. The sequence of symptoms following the more complete involvement of

the recurrent nerve was very interesting, especially the effect upon voice and respiration as the cord receded from the median line to the so-called "cadaveric position."

This is neither the time nor place to discuss the value of the sphygmograph in such instances as these just noted. It may not always give evidence of existing lesion, but where certain well-known deviations from the normal tracing are obtained, we have an additional, and, I believe, trustworthy aid to diagnosis. The importance of a laryngoscopic examination has been often urged by others and is fully understood.

REFLEX AND OTHER PHENOMENA DUE TO NASAL DISEASE.

BY LOUIS ELSBERG, M.D.,

NEW YORK.

SOME of the phenomena connected with nasal disease which I am about to mention are not precisely reflex; but most of them are, and I consider it of advantage clinically to bring the former to your notice together with the latter.

More than twenty years ago I noticed that the subjects of rhino-pharyngeal disease, especially in case of considerable congestion and thickening of the mucous membrane, suffer peculiarly from more or less loss of memory and mental depression. This led me to the intimate vascular and nervous relations of the pituitary mucous membrane and the brain.

In 1863 a very remarkable case of chorea came under my observation :

S. Van H., a well-developed, intelligent girl, fourteen and a half years old, had for over seven months been suffering from fearful choreic movements, especially of the tongue, face, and hands. She belonged to what may be called a "catarrhal family," but until recently had herself been entirely free from the family complaint. She had two brothers and three sisters, and had always been healthier than either of these or her parents. She had passed through whooping-cough and scarlet-fever with impunity, had not had croup or measles, and began to menstruate at the age of thirteen, having been regular ever since. Nearly

a year before consulting me, while sleigh-riding, the horses ran away, the sleigh upset, and she caught a very severe cold. The acute coryza had become chronic, the tip of her nose had become quite red, and the least exacerbation of catarrh produced intense sneezing fits and epistaxis. The chorea, though it came on very gradually, was greatly increased whenever she took cold, so that at such times the movements continued even during sleep.

Without giving the further details, it suffices for my present purpose to state that the chorea so obviously seemed to be influenced by and to depend upon the nasal disease that I directed my attention exclusively to this, and that *pari passu* with the cure of this the chorea completely and permanently disappeared.

Since then, during a period of twenty years, my own experience and the recorded observations of others have shown a number of other morbid conditions to be due to nasal affections that were not previously suspected to be so caused. These are, besides 1, melancholia; and 2, chorea:

3. Reflex epilepsy.
4. Neuralgia, especially supra-orbital, headache, migraine.
5. Gastric disturbances and diseased conditions of the upper digestive tract, as reflex pharyngitis, uvulitis, tonsillary enlargement, etc.
6. Uterine disorders and affections of the genito-urinary mucous membrane.
7. Pain and disordered function of the organs of sense, especially of smell and taste, but also of hearing and sight.
8. Numerous affections of the extra-nasal respiratory tract and organ of voice, among which are especially prominent the various alterations of the speaking and singing voice, laryngeal cough, glottic spasm, and bronchial asthma.

I could relate cases of patients illustrating the different morbid conditions enumerated under these eight heads; but this is not necessary on this occasion, as those of you who have had any similar experience can contribute it, without such relation, to the discussion which to evoke is the object of this enumeration.

In speaking of Miss Van H., the choreic patient, I men-

tioned that the outside of her nose had become red. This redness was relieved with the intra-nasal disease. I have had a number of such cases in my practice. External redness of the nose, especially diffuse redness, often depends upon chronic nasal catarrh, a point to which Bresgen has recently publicly called attention, and which I can confirm from many years' experience.

En passant, I wish to mention the case of a man affected with chronic nasal catarrh, who was seized with the most violent fit of sneezing during every coïtus.

Finally, I wish to refer to the case of a girl between sixteen and seventeen years of age, who is still under my care for nasal disease, whose development is so retarded that most persons would suppose her to be only eight or nine years old. She has no hair either in the axilla or on the pudenda, has not menstruated, and is in every way stunted in growth. With the improvement of her nasal disease, her general health and development are ameliorating.

To account for the intimate connection between affections of the mucous membrane of the nose and cerebral affections, Dr. Jacobi, in a recent communication to the New York Obstetrical Society, drew attention to the following three points: "In the first place, the trigeminus with all its branches is subjected to direct or reflex irritation arising from the inflamed condition of the nasal mucous membrane. Secondly, the thickening of the mucous membrane in the narrow nasal passages of the child [and the same thing is more or less the case in the adult], and especially the presence of a polypus, seriously interfere with respiration, and the result is the accumulation of carbonic acid gas in the brain, particularly about the respiratory centre at the medulla oblongata. Thirdly, the lymphatic system of the nasal mucous membrane and that of the dura mater and the arachnoid membranes are in intimate relation with each other, which is so close that they can be injected from either side."

ASYMMETRY OF THE NASAL CHAMBERS WITHOUT SEPTAL DEVIATION.

By HARRISON ALLEN, M.D.,

PHILADELPHIA.

THE subject of asymmetry of the nasal chambers can be considered from two points of view, viz., from that of the changes in proportion due to deflection of the nasal septum, and from that of the inequality of the chambers themselves in subjects in whom the nasal septum is straight. As the result of observation of ten examples of crania, selected from the anatomical cabinets of Philadelphia, it may be concluded that a difference in the diameters of the posterior nares can be detected. In the living subject, the writer has reason to believe that asymmetry in the posterior nares can be also discerned; and that, at least in the persons of those reporting for the relief of catarrhal affections, the number exhibiting such asymmetry is much larger than would appear from the examination of the crania alone. As the result of clinical study in this direction, extending over the last two years, the writer concludes that, in a fixed proportion of cases, nasal obstruction may be limited to one of the nasal chambers, and that such tendency to obstruction may be due to congenital causes.

It is not designed in this connection to present an elaborate description of this variety of conformation, with its clinical application, but simply to call attention to a fact which appears to have escaped observation; or, at least, to have received so little attention in the minds of observers as not to enter into questions of diagnosis or prognosis of

nasal disorders. It is quite evident that imperfect nasal respiration, due to the above-mentioned cause, cannot be relieved by any operation on the septum, as these operations are at present defined ; and that no operation short of drilling away the entire inferior turbinated bone will be likely to afford relief.

It is interesting to remark that in the crania exhibiting the above peculiarity, the best-marked examples were found in the skulls of idiots, in whom marked asymmetry of the cerebral fossæ was also seen. It is not at all unlikely that the real solution of the subject of congenital asymmetry without septal deflection is to be found in the peculiarities of development of the cerebral hemispheres themselves, and that the study of this subject cannot be separated from the general subject of bilaterality ; that is to say, from the general subject of right and left symmetry as controlled by the nerve-centres.

ON THE RESULTS OF THE TREATMENT OF NASO-PHARYNGEAL FIBROMATA, WITH DEMONSTRATION OF SUCCESSFUL CASES, TOGETHER WITH A TABLE OF SEVENTY-FOUR OPERATIONS BY DIFFERENT SURGEONS.

By RUFUS P. LINCOLN, M.D.,

NEW YORK.

IT is my desire to call attention to the treatment of a class of cases which, I believe, has never received the consideration which it deserves, but upon which I desire to elicit discussion. I refer to those growths usually called naso-pharyngeal polypi, especially those of a fibroid character, and which I prefer to designate by the term "naso-pharyngeal fibroma." The myxoma is excluded as being beyond the province of this paper, as well as those growths having their origin exclusively in the anterior nasal passages. These tumors, if not interfered with, inevitably cause great suffering, deformity, and ultimately destroy the life of the patient.

The object of treatment is, therefore, first, their thorough removal, with the destruction of all diseased tissue at the place of origin ; second, avoidance, so far as possible, of accidents incident to operations of the naso-pharyngeal region ; and third, to secure the result with the least external disfigurement.

To illustrate my subject, I have limited my researches to the records of cases published since 1867. The selection of this date is purely arbitrary, but it furnishes a period sufficiently long to embrace within it cases illustrating every

variety of treatment, and the fertility of the surgeon's resources in his efforts to accomplish a cure. Some cases may have been overlooked, but none intentionally omitted. A great variety of methods of treatment have been advocated and practised, as will be seen by referring to the table of operations herein presented. In advance, I wish to disclaim the purpose of advocating any one method as applicable to every phase of the disease that presents itself; at the same time, I believe you will conclude with me that there are many cases which may be successfully treated by a method simpler and safer than that usually employed by many of our distinguished surgeons.

An eminent operator, in advocating the removal of these growths through a partial excision of the upper jaw, remarks: "The operations for the removal of the naso-pharyngeal polypi, although formidable in character, are remarkably successful in their results."¹

If we refer to the table of cases which forms a part of this paper, we find, that of twenty-eight patients treated by a section of the bones of the face, in several instances the growths returned, necessitating a repetition of the operation or the substitution of some other; and also that in eight cases, more than 28 per cent., death followed immediately or in a few days—a result suggesting a doubt as to the propriety of the above-quoted conclusion, and justifying a careful consideration of other methods which have been employed.

I have succeeded in compiling the history of fifty-eight patients, including three of my own, one of which is given to you to-day for the first time. These cases fairly represent seventy-four operations, which I have tabulated as follows :

¹ H. B. Sands, M.D., Brown-Séquard's *Arch. of Scientific and Prac. Med.*, June, 1873, p. 517.

SYNOPSIS OF TABLE OF CASES (pp. 264-281.)

No. of Operations	Number and Sex of Patients.	Age of Patients.	Operations Involving Section of Facial Bones or the Laying Open of Cicatrices Resulting from Previous Operations of this Character.	Removal by Knife, Scissors, Avulsion with Forceps, etc.	Removal by Écraseur or Ligature.	Removal by Injection or Cauterization with Chloride of Zinc.	Removal by Electrolysis.	Removal by Galvano-Cautery Écraseur. *
74	58	8 years, 2	No. operations, 39.	No. operations, 7.	No. operations, 12.	No. cases treated, 2.	No. cases treated, 3.	No. operations, 11.
	Males . . 48	14 " 6	No. patients, 28.	No. patients, 7.	No. patients, 11.	No. cases in which recurrence is reported to have taken place within a year, 1.	No. cases reported under observation for a year or more without recurrence, 1.	No. patients, 10.
	Females . 8	15 " 3	No. cases in which recurrence is reported to have taken place within a year, 14.	No. cases in which recurrence is reported to have taken place within a year, 6.	No. cases in which recurrence is reported to have taken place within a year, 1.	No. cases in which there is no record after the discontinuance of treatment, 1.	No. cases in which there is no record after the discontinuance of treatment, 2.	No. cases in which recurrence is reported to have taken place within a year, 3.
	Not stated 2	16 " 5	No. cases reported under observation for a year or more without recurrence, 4.	No. cases reported under observation for a year or more without recurrence, 1.	No. cases reported under observation for a year or more without recurrence, 4.	No. fatal cases, 0.	No. fatal cases, 0.	No. cases reported under observation for a year or more without recurrence, 6.
		17 " 3	No. cases in which there is no record subsequent to the operation, or a few months after, 13.	No. cases in which there is no record subsequent to the operation, or a few months after, 5.	No. cases in which there is no record subsequent to the operation, or a few months after, 2.	No. fatal cases, 0.	No. fatal cases, 0.	No. cases in which there is no record subsequent to the operation, or a few months after, 2.
		18 " 3	No. deaths during or attributable to the operation, 8.	No. fatal cases, 1 (No. 21).	No. fatal cases, 0.	No. fatal cases, 0.	No. fatal cases, 0.	No. fatal cases, 0.
		19 " 2	In three other cases operation nearly proved fatal (Nos. 20, 23, and 55).					
		20 " 1	Not stated, 8 46).					
		21 " 2						
		22 " 1						
		23 " 2						
		25 " 1						
		26 " 1						
		30 " 1						
		33 " 1						
		35 " 1						
		39 " 1						
		40 " 2						
		41 " 1						
		42 " 1						
		45 " 1						
		47 " 1						
		48 " 1						
		52 " 2						
		54 " 1						
		55 " 1						

* In this class is included one case treated by means of the actual cautery (No. 70).

I will conclude with a report of a case I treated last January by means of the galvano-cautery écraseur, with subsequent destruction of the stump with the galvano-cautery. After which you will have an opportunity to examine this patient, together with others operated upon by me some years ago by the same method.

A. H. G., (No. 74 in table,) a student, aged seventeen years, applied to me Dec. 30, 1882, for examination. He complained of inability to breathe through his nose, and stated that nine months before he had undergone an operation, while under the effects of ether, for the removal of a "polypus," having at that time the same symptoms as now. I subsequently learned from the youth's parents that the operation was suspended because of the loss of blood and the prostration of the patient, a portion only of the "polypus" having been removed, and that polypus-forceps and scissors were the instruments used. Several weeks elapsed before he recovered his strength sufficiently to resume his studies.

The patient was of healthy American parentage, but had himself been of a delicate nervous constitution, and was subject to frequent "colds." He was of studious habits, and for the previous two years had been at a boarding-school, but had often been obliged to suspend his studies on account of headaches, which had become more and more constant until the question of abandoning school had been seriously considered.

Nasal respiration was partially restored by this first operation, but gradually became more difficult, until at the end of three months it was as bad as ever; the consequent evils were again, therefore, added to his nervousness and diffidence, until his life had become a burden to himself and a source of constant anxiety to his family.

Examination: On inspecting the nostrils anteriorly I found the septum deviated to the left, and at a point about two inches from the margin of the right an obstructing mass, occupying the whole space, of a light pink color, smooth and elastic to the pressure of a probe. On attempting post-nasal rhinoscopy the post-nasal cavity was found occupied and completely filled, so as to press slightly on the soft palate, by a tumor of the same appearance as that discovered anteriorly. By manipulation they were found to be connected and one and the same, and evidently fibrous in character. The whole mass was covered with mucous membrane

but its inferior surface was rough and ulcerated. By means of a finger introduced through the mouth the tumor was followed to its attachment to the vault of the pharynx, mainly on the right side, by a rather large pedicle. There was no external deformity of the nose or face.

I advised the removal of the tumor by means of the galvano-cautery *écraseur*, and a subsequent treatment of the stump by the galvano-cautery. After some deliberation this method was consented to.

On Jan. 8th the operation was performed after the manner described by me to this Society four years ago.¹

A looped platinum wire was passed through the right nostril into the throat and carried up behind the tumor to its attachment by means of a finger introduced through the mouth. The two free ends of the wire were then each passed through the two arms of an electrode, which was run as far as possible toward the base of the growth, thus encircling the pedicle close to its starting-point.

The patient was then etherized, and the electrode being connected with the battery, the pedicle was divided in two or three minutes without difficulty and with the loss of but a few drops of blood. The tumor was then withdrawn through the mouth. The excised surface of the tumor was about three-fourths of an inch by one inch, being oval in shape; the mass was irregularly pear-shaped, as large as a seckel pear, and lobed where it extended into the right nostril. Nasal respiration was at once perfectly established, and the patient quickly rallied from the effects of the ether.

It seemed necessary to make but five applications of the galvano-cautery to the stump, which were done at intervals of a week.

An examination of the tumor showed it to be a fibroma. Nearly four months have now passed since the last operation, and there are no indications of a recurrence of the tumor, as you will be able to satisfy yourselves on inspection.

I am happy to be able to present to you, for a second examination, the two patients you saw at the meeting of this Association in 1879, at which time a detailed report of their cases and operations was made by me.

¹ Trans. American Laryngological Association, 1879, pp. 247-255.

You will remember the first case—J. B. J. (No. 33 in table,)—had been operated upon by me in April, 1875, eight years ago, for a large recurrent “naso-pharyngeal polypus,” a fibroma. The operation was the same as that used in the case just given to you. There has been no return of the trouble.

There is an interesting feature in this case, of great practical value, to which I beg to call your attention. There was in this gentleman’s right cheek, at the time I operated upon him, a tumor, which reached nearly an inch below the zygomatic arch, which continued behind it, and was evidently related to the main tumor. It has completely disappeared, and has never received any direct treatment.

It would seem that the nutrient supply to this prolongation had been cut off by the destruction of the main growth, and that in consequence this had atrophied.

The other patient, Mr. M. B., (No. 39 in table,) who was also treated by the same method in Jan., 1876, seven years ago, is even more remarkable in his history, because of his feeble condition when I took him in hand, and because of the enormous tumor that was literally splitting open his head. The growth had been twice before removed by eminent surgeons.

Here is a model in wax made by my friend Dr. Goodwillie, from a cast taken at the time of the operation, but after the bulk of the tumor had been much shrunken by electrolysis.

This tumor was also a fibroma, and there has been no recurrence.

TABLE OF SEVENTY-FOUR OPERATIONS ON NASO-PHARYNGEAL FIBROMATA BY DIFFERENT
OPERATORS FROM 1867 TO 1883.¹

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
July 19, 1867.	Thomas Bryant. Trans. Path. So- ciety, of London, vol. xviii, p. 107.	Male.	15	1 year.	Solid growth, three and a half by two inches, attached to base of skull, and completely filling upper part of pharynx.	Fibrous.	Écraseur, with whip- cord loop, tightened daily.	Tumor came away on sixth day. No sign of disease after operation. No subsequent history reported.
(1)								Fourteen months before Mr. Bryant had attempted to remove a similar poly- pus, of two years' growth, with the wire écraseur. In five days wire came away without tumor, which became shrivelled for a time, but subse- quently began to grow again.
July 23, 1867.	D. W. Cheever. <i>Boston Med. and Surgical Journal</i> , March 11, 1869.	Male.	19	13 months.	Firm, lobulated tu- mor filling upper and back part of pharynx, and attached to body of sphenoid bone.	Not stated.	Resection of superior maxilla by Langen- beck's operation. At- tachments divided with scissors, and point of section cauterized with strong nitric acid.	Symptoms of recur- rence noticed after eleven months. Thirteen months previ- ously an operation was performed for the relief of disease, of which this was the recurrence, and the origin of the growth dated two and a half years before that time.
(2)								

¹ In attempting to make a collection of the fibromata of the naso-pharyngeal region, it has been found impracticable to include *only* those of purely fibroid character. This is due partly to a want of uniformity in the use of pathological terms by different writers; also to the fact that many of the tumors partake of a mixed character.

Were, however, the few questionable cases that appear in this table eliminated, the sum of the evidence would remain unaltered.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
1868. (3)	D. W. Cheever. <i>Ibid.</i>	Male. (Same pa- tient as above.)	20	11 months.	Tumor in same situa- tion as above, of size of English walnut.	Not stated.	Langenbeck's opera- tion repeated, and a small portion of inner angle, just below or- bital process, removed on account of thicken- ing. After section of pedicle, the bone thor- oughly scraped.	In a recent note to the writer, Dr. Cheever states that there has been no recurrence since this operation.
1868. (4)	D. W. Cheever. <i>Ibid.</i>	Male.	41	13 months.	Both nostrils and the pharynx above the soft palate completely filled with a tumor of the size of a pullet's egg, whose anterior edge extended to within one half inch of alveolar border, and which was attached to the ethmoid and body of the sphenoid. In size and shape like a large lemon.	Fibrous.	Temporary displace- ment of both superior maxillæ. Attachments severed as near the bones as possible, and the remaining portion scraped away.	Operation followed by shock, and patient died from exhaustion 120 hours after operation.
1868. (5)	M. L. Thomas. <i>Lancet</i> , May 1, 1869.	Male.	18	18 months.	Tumor implanted in basilar process, stretch- ing down to left cheek, and invading the maxil- lary sinus.	Fibroma.	Excision of the supe- rior maxilla, and re- moval of the polypus.	No recurrence after several months.
Aug. 6, 1868. (6)	Mr. Rouse. <i>Lancet</i> , Feb. 27, 1869.	Not stated.	14	Several months.	Tumor of pharynx, extending through right nostril nearly to outlet, and attached to basilar surface.	Fibrous, and fibro-cellular.	Langenbeck's opera- tion. Tumor seized and extracted with polypus forceps.	No record after thir- teenth day after opera- tion.
Sept. 14, 1868. (7)	Thos. Waterman. <i>Boston Med. and Surgical Journal</i> , April 8, 1869.	Male.	39	4 years.	Firm, lobulated growth, situated be- hind soft palate, ex- tending into left nasal fossa, and attached to sphenoid.	Not stated.	Langenbeck's opera- tion. The tumor cut and torn away, and the points of attachment swathed with Squibb's liq. ferri subsulphat.	Subsequent history not given.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
Oct. 12, 1868.	Thos. Waterman. <i>Ibid.</i>	Male.	33	2 or 3 months.	Growth filling left half of space between base of skull and posterior nares, and having a broad surface of origin from basilar process of sphenoid-occipital bone.	Glandular, and partially fibrous.	Excision of left superior maxilla by Velpeau's operation. Tumor removed with scissors, and the bone from which it grew cut away. Squibb's liq. ferri subsulphat. applied to points of attachment.	No recurrence at the end of four months after operation.
(8)								
Mar. 11, 1869.	A. Bonnes, <i>Bulletin Gen. de Therap.</i> , Oct. 30, 1869.	Female.	25	Several years.	A polypus of four branches, weighing eighteen grammes, which filled upper part of pharynx and both nostrils (the right more completely than the left), and originated from base of skull.	Fibrous.	Ablation by means of a metallic nail attached to a thimble.	No recurrence at the end of four months after operation.
(9)								
Apr. 13, 1869.	H. G. Clark. <i>Boston Med. and Surgical Journal</i> , Oct. 19, 1871.	Male.	26	Not stated.	Soft tumor, of size of pigeon's egg, filling both nasal cavities and upper part of pharynx.	Fibro-cellular.	Incision, on left side of nose, through middle of lip. Tumor scraped out with finger. The bone, which was a little rough, was chiselled.	Tumor began to return two months after operation.
(10)								Four years before this operation a small soft tumor had been removed with the knife. Time of recurrence not given.
March, 1871.	H. G. Clark. <i>Ibid.</i>	Male. (Same patient as above.)	28	21 months.	Tumor filling whole naso-pharyngeal cavity, and pressing soft palate downward. Two pedunculated polypi hanging down behind the soft palate from the post-pharyngeal wall, one of which was of cylindrical shape, and extended two thirds the length of the tongue.	<i>Ibid.</i>	Incision made in old cicatrix, and the growth cleaned out as thoroughly as possible.	No record after one month subsequent to operation.
(11)								
Nov. 11, 1869.	Ephraim Cutter. <i>Boston Med. and Surgical Journal</i> , Nov. 22, 1870.	Female.	15	Not stated.		In a communication to the writer, Dr. Cutter states that he regards the growth as recurrent fibroid, and that its origin was at the basilar process of occipital bone, more to the left side than the right.	Tumors removed by tube écraseur through the nose.	Larger growth afterward returned. (Time of recurrence not given.)
(12)								

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
July 14, 1870. (13)	Ephraim Cutter. <i>Ibid.</i>	Female. (Same pa- tient as above.)	15	Not stated.	Tumor occupying same position as the larger of the above.	Recurrent Fi- brous.	Tumor removed by tube écraseur through the mouth. Seat of pedicle touched with nitrate of silver.	In a recent note to the writer, Dr. Cutter states that both growths subse- quently recurred, and were removed in the same way at least four times. He has not seen the case for three years, when he last operated, and cannot say whether there has been recurrence since then or not.
1869 and 1870. (14)	Prof. Von Bruns, <i>Berliner klin. Wochensch.</i> , July 1, 1872. <i>Boston Med. and Surgical Journal</i> , Nov. 28, 1872.	Male.	23	2 or 3 years.	Large tumor filling entire pharynx, sending prolongation through left nostril to its an- terior orifice, and push- ing left eyeball out- ward, downward, and forward.	Fibrous.	Electrolysis. From May, 1869, to March, 1870, 130 applications.	Only a hard knot, of size of pea, remained in posterior edge of vomer. No recurrence at the end of two years after cessa- tion of treatment. The patient had been operated on, three years before the treatment by electrolysis was com- menced, with Maison- neuve's écraseur, but the growth returned.
1869 to 1871. (15)	Prof. Ciniselli, <i>Boston Med. and Surg. Journal</i> , Nov. 20, 1873.	Not stated.	Not stated.	Not stated.	Tumor occupying whole wall of pharynx, stopping left nostril completely and right nostril partially, and pushing epiglottis against base of tongue.	Not stated.	Electrolysis. Appli- cations made every twenty days, from Nov. 20, 1869, to Oct., 1871.	At the end of the course of treatment tu- mor so reduced in size that only an insignificant prominence was to be seen on posterior inferior wall of pharynx. No subsequent history.
May 10, 1870. (16)	H. O. Hitchcock, <i>Trans. Michigan State Med. Society</i> , 1870, p. 94.	Male.	Not stated.	2 or 3 years.	Tumor weighing three ounces firmly attached to outer wall of right nostril, and along upper part of inferior turbi- nated bone as well as to surface of pterygoid process of sphenoid and the septum nasi.	Fibrous.	Langenbeck's opera- tion. Tumor removed piecemeal.	Previous efforts to re- move polypus by avul- sion and afterward by the écraseur had failed. In a recent note to the writer, Dr. Hitchcock states that there was no recurrence for three years after operation, when the pa- tient died of pneumonia.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
June 30, 1880. (17)	Mr. Verneuil. <i>Gaz. des hôpît.</i> , Aug. 9, 1870.	Male.	16	8 months.	Large polypus at- tached at left of base of skull, filling pharynx and sending prolonga- tions into nasal fossa, maxillary sinus, orbit, pterygo-maxillary fis- sura, and, possibly, the temporal fossa.	Not stated.	Resection of superior maxilla, and one lobe of tumor after another re- moved.	Considerable hemor- rhage; syncope; intro- duction of blood into air- passages; death during operation.
1870. (18)	Mr. Holmes. <i>Lancet</i> , Jan. 16, 1875.	Male.	35	4 years (?).	Tumor of pharynx hanging down behind soft palate, projecting into left nostril, and at- tached to body of sphenoid or basilar process of occipital bone.	Fibrous, with a few spindle- cells.	The whole of superi- rior maxilla, with ex- ception of orbital plate, removed, and the tu- mor cleared away as far as possible.	Recovery from opera- tion rapid; but the growth recurred. (Time not stated.)
Dec. 3, 1873. (19)	Mr. Holmes. <i>Ibid.</i>	Male. (Same pa- tient as above.)	38 (?)	3 years (?).	Large mass project- ing into nose and ad- herent to base of skull.	Fibrous, and containing more round- cells than spin- dle-cells.	Cicatrix of former operation opened up and tumor taken away almost entirely. The whole of the soft tissues then gouged away from base of skull where the tumor was adherent.	No history subsequent to recovery from opera- tion.
Nov. 26, 1873. (20)	Dr. Cabot. <i>Boston Med. and Surg. Journal</i> , Feb. 9, 1871.	Male.	40	18 months.	Polypus occupying pharynx and permeat- ing every available part of nose. Appeared in both anterior nasal ori- fices and also at upper and inward part of right orbit; its entrance into orbit being from the sphenoid bone.	Glandular polypus. (Fi- bro-cellular.)	Nasal bones sawn in line of lateral nasal su- tures, and the nose turned downward over the mouth. Tumor re- moved with scissors and forceps. Trache- otomy performed dur- ing operation on ac- count of difficulty of respiration.	Patient almost col- lapsed after operation, but rallied and made a good recovery. No sub- sequent history.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
1871. (21)	Cooper Foster. <i>Lancet</i> , May 20, 1871. <i>Med. Times and Gazette</i> , May 27, 1871.	Male.	19	Not stated.	A tumor of enormous size, the nasal portion of which was principally confined to left side. Attached to left side of external base of skull, it filled the base between greater and lesser wings of sphenoid, the orbital plate of the frontal, and cribriform plate of ethmoid, and extended from right nasal fossa, by way of sphenoid fissure, into the back of the orbit.	Made up of small fusiform cells and stellate connective tissue.	Tumor could not be circumscribed and large portions were torn away with forceps. Much of it left <i>in situ</i> .	Patient died twelve days subsequent to operation after convulsions and coma. The autopsy showed general arachnitis and circumscribed sloughing of brain. The cribriform plate of ethmoid was broken, and at the back part there was a small opening and a fracture extending forward from it.
1871. (22)	W. R. Whitehead. <i>N. Y. Med. Record</i> , Jan. 2, 1872.	Female.	Not stated.	Not stated.	A tumor of two ounces weight completely filling the posterior nares, projecting from pharynx into mouth, and attached from basilar process of occipital bone to a point as far down as the third cervical vertebra.	Muco-fibrous.	Removed by avulsion by means of the fingers.	No history after operation. Some time previously the patient had had a small polypus torn away with forceps through the right nostril.
Oct. 20, 1871. (23)	H. B. Sands. <i>Brown-Séquard's Arch. of Scient. and Practical Medicine</i> , June, 1873.	Male.	20	1 year.	Firm, elastic tumor occupying pharynx and nasal cavities (the right more completely than the left), and having a pedicle with broad attachment to base of skull. Oval in shape and measuring $2\frac{1}{2}$ inches in length, $2\frac{1}{2}$ in breadth, and $1\frac{1}{2}$ in thickness. Diameter of pedicle $1\frac{1}{4}$ inches.	Fibrous.	Flap in soft palate, including horizontal plate of palate bone, reflected downward. The hard palate found in open part absorbed from pressure of tumor. The écraseur at first used, but the chain breaking, the pedicle was divided with scissors as close to bone as possible.	Impossible to satisfactorily detach pedicle at time of operation, and the wound in palate left hard palate found in open. There was pronounced exhaustion from hemorrhage, and the patient recovered without any bad symptoms. The tumor almost immediately began to grow again.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
May 10, 1872.	H. B. Sands. <i>Ibid.</i> <i>N. Y. Med. Record</i> , Feb. 2, 1878.	Male. (Same pa- tient as above.)	20	6 months.	Large fungous-look- ing mass completely obstructing right nasal cavity and attached to basilar process of oc- cipital, body of sphenoid, right pterygoid process, hard palate, and septum nasi.	Fibrous.	Partial excision of the jaw; connections of tumor divided; large part of septum and nearly all the remains of hard palate removed with forceps; the pedi- cle severed with gal- vano-cautery <i>écraseur</i> , and galvano-cautery applied to stump.	A small prolongation of the polypus into the sphenoidal cells was al- lowed to remain. Pa- tient recovered rapidly after operation, but the tumor subsequently re- curred. (Time not stated.) In Jan., 1877, removed a third time, and in March recurred again. From May to Aug., 1877, treated by electrolysis. The stump then touched with Paquelin's cautery and the patient discharged. No subsequent record.
1872. (24)								
1872. (25)	Leon Labbé. <i>Lancet</i> , Oct. 19, 1872. Aug. 2, 1873.	Female.	Not stated.	Not stated.	Naso-pharyngeal tu- mor, of size of small hen's egg.	Not stated.	Soft palate slit with galvano-cautery knife, and tumor removed with galvano-cautery <i>écraseur</i> . Electrolysis.	Cauterizations on root of polypus with galvanic button for some time after operation. No recurrence at the end of nearly a year.
Mar. 12, 1873, to April 7, 1873. (26)	Paul Bruns. <i>Berlin. klin. Wo- chenschr.</i> , 1873, No. 82. <i>N. Y. Med. Record</i> , May 15, 1874.	Male.	30	8 years.	Large tumor resting on arch of post pharyn- geal wall, right side, and filling almost the entire fauces.	Fibrous.		Four weeks after last application no trace of tumor remained. No sub- sequent history.
June 18, 1873. (27)	Spencer Watson. "Diseases of the Nose," p. 439.	Male.	55	7 years.	Left nostril occupied by a firm growth, at- tached by broad base to anterior and upper part of outer walls, and to small portion of cribri- form plate of ethmoid.	Fibrous.	Bone divided about junction of nasal pro- cess of superior maxilla and nasal bone, and root of polypus torn away with finger. The bones at upper part of cavity scraped, and strong perchloride of iron applied to surface of attachment.	Recurrence noticed in seven months.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
Apr. 29, 1874. (28)	Spencer Watson. <i>Ibid.</i> , p. 441.	Male. (Same pa- tient as above.)	56	3 months.	Soft polypus, large as hen's egg, occupying whole nasal cavity as far back as the sphenoidal cells (from which the deeper portion originated), and ptery- goid processes. Naso-pharyngeal tu- mor implanted on basi- lar process.	Fibrous.	Nasal bones split up and portion of nasal process of superior maxilla cut away. Tu- mor removed piece- meal.	In two months patient died from intracranial disease; the nostrils in meanwhile having again become completely ob- structed.
1873. (29)	Leon Labbé. <i>Lancet</i> , Aug. 2, 1873.	Male.	25	Not stated.		Fibrous.	Soft palate slit with galvanic knife, and greater portion of tu- mor removed with gal- vano-cautery écraseur. Remaining part with scissors, and the seat of attachment cauter- ized with heated iron.	No subsequent history.
1874. (30)	Mr. Callender. <i>Lancet</i> , Jan. 16, 1875.	Female.	Not stated.	2 years (?).	Growth situated un- der orbital plate and ex- tending along base of skull as far as vertebral column.	Fibrous (?).	Cicatrix of a former operation opened up, and the mass removed as far back as possible.	Case afterward turned out to be malignant, and patient died two years after operation. Seven years before, su- perior maxilla resected, and a similar tumor, in- vading the antrum, re- moved. Recurrence at end of five years.
June, 1874. (31)	Berkeley Hill. <i>Lancet</i> , June 20, 1874.	Male.	16	Not stated.	Large naso-pharyn- geal tumor extending outward through the pterygo-maxillary fis- sure and passing for- ward under the cheek. Tumor weighing two ounces completely fill- ing posterior nares, pro- jecting from pharynx into mouth, and attach- ed from basilar process of occipital bone to a point as far down as third cervical vertebra.	Not stated.	Growth removed by temporary displace- ment of upper jaw.	Operation completed satisfactorily, but at its conclusion patient died on table, either from shock, loss of blood, or chloroform.
Dec. 18, 1874. (32)	James L. Little. <i>Archives of Clini- cal Surgery</i> , July, 1876.	Male.	40	2 years.		Fibrous.	Preliminary trache- otomy and excision of greater part of anterior maxilla by Ferguson's operation. Tumor re- moved by galvano- cautery and scissors, and hemorrhage con- trolled by galvano-cau- tery.	Patient much prostrated, and early on following morning sank suddenly and died.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
Apr. 26, 1875.	R. P. Lincoln. Trans. American Laryngolog. Ass'n, 1879.	Male.	15	3½ years.	Elastic tumor weigh- ing one and three- fourth ounces, inserted in vault of pharynx, occupying to a great extent the right nostril, occluding the left pos- terior nasal region, and sending a prolongation into right zygomatic fossa.	Fibrous.	Galvano-cautery é- craseur, looped platinum wire being carried through right nostril, encircling the tumor at its base.	Subsequent to the oper- ation, twelve applications of the galvano-cautery, (a platinum disk being used,) at intervals from four to seven days. No recurrence up to the pres- ent time. Avulsion with forceps had been previously at- tempted in this case, but unsuccessfully.
(33)								
Aug. 5, 1875.	H. Gulcke. <i>N. Y. Med. Record</i> , June 25, 1881.	Male.	15	Not stated.	Two tumors: one a large flat body, above lower edge of velum, on posterior wall of phar- ynx; and the other, softer and more conical, closing entrance to left nostril.	Not stated.	With the galvano- cautery écraseur the whole of the lower tumor, and the greater part of the upper, were removed.	Subsequently several attempts were made to remove the base of upper tumor with the galvano- cautery; but it was found impossible to keep the loop in position. The mass then began to grow again, and it was finally entirely scraped away with a sharp spoon. No recurrence up to last re- port; March, 1881. Growth soon returned. (Time not stated.)
(34)								
Dec. 1875.	R. C. Brandeis. <i>Amer. Practitioner</i> , April, 1877.	Female.	22	Several years.	Pear-shaped tumor one inch in length and three and three-fourth inches in greatest cir- cumference, occluding both nostrils, filling up per part of pharynx and attached to basilar pro- cess of occipital bone.	Fibro-sarco- ma.	Removed with wire of fine écraseur passed through right nostril.	
(35)								
July, 1876.	R. C. Brandeis. <i>Ibid.</i>	Female. (Same pa- tient as above.)	22	Not stated.	Two tumors in same situation as above, though somewhat less in size.	Fibro-sarco- ma.	An attempt to oper- ate with écraseur hav- ing failed, the tumors were removed with double-curved scissors.	Several applications of chromic acid were made to the remaining stumps, and there was no sign of recurrence nine months after operation.
(36)								

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
Dec., 1875. (37)	H. B. Sands. <i>Archives of Clinical Surgery</i> , Aug., 1876.	Male.	15	2 years.	Tumor of size of hickory-nut, attached to basilar process of oc- cipital bone.	Not stated.	Exsection of superior maxilla and removal with galvano-cautery.	Growth soon returned. (Time not stated.)
May 17, 1876. (38)	H. B. Sands. <i>Ibid.</i>	Male. (Same pa- tient as above.)	15	Not stated.	Tumor two inches in length, attached as above, and extending forward to great wing of sphenoid and down- ward to level of hard palate.	Not stated.	Lateral attachments divided with galvano- cautery knife, pedicle divided with bistoury, and the remaining part removed with forceps and scissors.	Recovery complete. No recurrence. (Communicated to au- thor by Dr. Sands.)
Jan. 15, 1876. (39)	R. P. Lincoln. <i>Trans. American Laryngolog. Ass'n</i> , 1879.	Male.	21	5½ years.	Large tumor attached by a pedicle three and a half inches in circum- ference to vault of phar- ynx, completely filling upper part of mouth, occupying whole of left nostril, and pressing septum to the right to such an extent as to en- tirely occlude the right nostril.	Cavernous fi- broma.	Removal with gal- vano-cautery écraseur; a looped platinum wire being passed through left nostril into the mouth, and carried up behind the tumor.	Seven thorough cauteri- zations of the stump with the galvano-cautery were made during the next four months, and there has been no recurrence of the growth up to the present time. In this case a " naso- pharyngeal polypus " first appeared in 1869, and in that and the following year it was twice removed by excision, after division of the soft palate. On account of the extreme debility of the patient electrolysis was employed for a year, (twenty-two applications in all,) as a preliminary to the radical operations by the gal- vano-cautery écraseur.
Feb. 1876. (40)	R. C. Brandeis and D. W. Yandell. <i>Amer. Practitioner</i> , April, 1877.	Female.	Not stated.	Not stated.	Hard mass, of size of pigeon's egg, and weighing 340 grains, oc- cupying whole post- nasal cavity and attach- ed to pterygoid plate of sphenoid.	Fibro - cellu- lar.	Removal by écraseur introduced through nostril.	No recurrence seven years after operation. (Communicated to author by Dr. Brandeis.)

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
1876. (41)	R. C. Brandeis. <i>Ibid.</i>	Female.	Not stated.	Not stated.	Two tumors of post- nasal cavity, each about size of hazel-nut and both attached to ptery- goid process of sphenoid bone.	Fibrous.	Removal by wire écraseur.	Patient subsequently treated for chronic nasal catarrh, and up to last re- port (time since operation not stated), no recur- rence of tumor.
1876. (42)	Dr. Mason, of Prov- idence. <i>Boston Med. and Surgical Journal</i> , May 9, 1878.	Male.	14	Not stated.	Pear-shaped polypus of pharynx and right nostril.	Fibroid.	Removal by looped ligature passed through the nose.	Tumor soon reappear- ed. (Time not given.)
Nov. 2, 1877. (43)	D. W. Cheever. <i>Ibid.</i> Boston City Hos- pital Reports, 1882.	Male. (Same pa- tient as above.)	15	Over a year.	Oval tumor, large as pullet's egg, nearly fill- ing pharynx, obstruct- ing right nostril, and at- tached to bodies of sphenoid and right pal- ate bones.	Fibroid.	Nose sawn down and depressed (Ollier's operation). Tumor re- moved, attachments scraped off the bones, and surface touched with nitric acid.	In a recent note to the writer, Dr. Cheever states that there was slight re- currence in this case, and that the patient has been lost sight of.
Sept. 2, 1876. (44)	H. Guleke. <i>N. Y. Med. Record</i> , June 25, 1881.	Male.	8	Not stated.	Tumor pressing down the soft palate and at- tached to posterior wall of pharynx.	Not stated.	Complete removal with galvanic - cautery écraseur.	No recurrence up to last record, March 8, 1881. (Four and a half years after operation.)
April, 1877. (45)	J. J. Chisolm. <i>Trans. Med. and Chir. Faculty of State of Maryland</i> , 1878, p. 180.	Male.	47	5 years.	Tumor growing from base of skull and ob- structing right nostril.	Not stated.	Removal by wire loop passed around base of growth and tightened daily. Tumor came away in three days.	Tumor recurred with- in four months.
Feb. 25, 1878. (46)	L. McLane Tiffany. <i>Trans. Med. and Chir. Faculty of Maryland</i> , p. 180.	Male. (Same pa- tient as above.)	48	6 months.	Firm, pear-shaped tumor, six inches in cir- cumference at largest part, and over three inches in length, filling greater part of posterior nares and pharynx, pressing on soft palate, resting against bodies of cervical vertebrae, and attached by pedicle to right pterygoid pro- cess and basilar process of sphenoid.	Fibro - sarco- ma.	Preliminary trache- otomy. Nose separ- ated from upper jaws and turned up over forehead, and both up- per jaws temporarily depressed. Pedicle di- vided with Paquelin's cautery, and tumor ex- tracted with lithotomy forceps. Chloride of zinc, in crystals, ap- plied to the bones at seat of attachment.	The shock great, and electricity resorted to to stimulate respiration. Pa- tient rallied slowly, but made a good recovery. In a recent note to the writer, Dr. Chisolm states that the patient died six months after this second operation from some acute chest trouble.

Date.	Operator. References.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
May 28, 1887. (47)	J. L. Ratton. <i>Lancet</i> , Nov. 3, 1878.	Male.	18	1 year.	Large growth, with base at least two inches in diameter, springing from body, pterygoid processes of sphenoid bone, back of pharynx, and margin of <i>foramen magnum</i> , filling left nostril, and protruding between alveolar process of upper jaw and the upper lip. A separate process attached to edges of sphenoid-maxillary fissure and passing into sphenoid-maxillary fossa. The hard palate had been completely absorbed by pressure of tumor.	Fibrous.	Preliminary laryngotomy. Skin flaps of Fergusson's operation. Nasal process of superior maxilla divided and anterior wall of antrum removed. Base of tumor cut off with whipcord ligature.	Patient only partially rallied after operation, and died the same evening from exhaustion.
Aug., 1877. (48)	W. Roth, <i>Wiener med. Wo- chen.</i> , July 24, 1880.	Male.	42	Not stated.	Tumor larger than a pigeon's egg occupying upper part of pharynx, extending into both nasal fossæ (the left more occluded than the right), and attached by pedicle to base of skull.	Fibrous.	Removal with galvanocautery through the nose, after fixation of the tumor.	No recurrence up to two and a half years after operation.
Aug. 31, 1877. (49)	D. W. Cheever. Boston City Hos- pital Reports, 3d Series, 1882.	Male.	21	3 years.	Hard, firm tumor in upper part of pharynx, secluding both nostrils and attached to basilar process of occipito-sphenoid bone.	Not stated.	Fergusson's incision on left side of face. Superior maxillary bone sawn across below molar bone and depressed. Tumor detached with scissors, and base cauterized with nitric acid.	Four years afterward patient remained free from trouble. In a recent note to the writer, Dr. Cheever states that there has been no recurrence up to the present time.
Nov. 7, 1877. (50)	Henry Morris. <i>Med. Times and Gaz.</i> , May 28, 1881.	Female.	16	Several years.	Tumor of large size, irregular shape, and broad base, occupying greater part of pharynx above soft palate, and blocking posterior nares.	Fibro-cellular.	Removal with écraseur.	No sign of recurrence up to last report, three and a half years after operation.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
May 7, 1873. (51)	J. C. Ogilvie Will. <i>Lancet</i> , December 6, 1879.	Male.	17	2 years.	Naso-pharyngeal growth of size of small tomato, arising from base of skull; also a second tumor, of size of walnut, attached to floor of nasal fossa.	Fibrous.	Smaller tumor re- moved with écraseur. For removal of larger, Langenbeck's opera- tion. Growth extir- pated by avulsion and use of scissors.	No recurrence at date of last record, six months after operation.
Oct. 17, 1878. (52)	Macfie Campbell. <i>British Med. Jour- nal</i> , Feb. 28, 1880.	Male.	54	3 years.	Naso-pharyngeal tu- mor extending in the mouth to the soft pa- late, completely block- ing right nostril, and pushing septum toward left.	Glandular carcinoma of Billroth.	Ferguson's incision. Superior maxillary bone, with orbital plate, the palate bone, and part of malar bone re- moved.	A small sinus under the orbit remained and had to be freely incised. Six months after operation no appearance of recur- rence.
Oct., 1878 to March, 1879. (53)	M. Barthelmy. <i>Le progrès méd.</i> , No. 49, 1879. Bul. et Mem. Soc. de Chir. de Paris, N. S., vol. v, p. 903.	Not stated.	14	Indefinite.	Large growth in pharynx depressing ve- lum and obstructing the nasal fossæ.	Not stated.	Two unsuccessful at- tempts to remove tu- mor by avulsion. The velum was then divi- ded, and nine times in the course of two months injections of five drops of chloride of zinc (sat. solution?) were made.	Growth became entire- ly destroyed, but at the end of six months there were signs of recurrence. No subsequent history given.
1878. (54)	D. W. Cheever. Boston City Hos- pital Reports, 3d Series, 1882.	Male.	15 (?)	3 years.	Naso-pharyngeal growth of size of Eng- lish walnut.	Not stated.	Removal by galvano- cautery.	Recurrence soon no- ticed.
1879 (?). (55)	D. W. Cheever. <i>Ibid.</i>	Male. (Same pa- tient as above.)	16	Not stated.	Tumor of size of hen's egg, with broad attachment to posterior wall of pharynx, par- tially occluding both posterior nares, hanging well down in thorax, and arising from basilar process of occipito- sphenoid bone.	Fibrous.	Depression of supe- rior maxilla. Attach- ments of tumor to bone scraped off.	In a recent note to the writer, Dr. Cheever states that there has since been no recurrence.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
Feb. 6, 1879. (56)	M. Cruveillier. <i>Bul. et mem. soc. chir. de Paris</i> , April 5, 1880.	Male.	17	Over 2 years.	Large and resisting bi- lobular tumor occlud- ing right nostril, fill- ing posterior part of nasal fossa, and attach- ed, one lobe to ptery- goid plate of sphenoid, and the other to basi- lar process of occipital bone.	Not stated.	Palate divided in me- dian line, and polypus extracted with forceps.	Gap in palate closed a year afterward; up to which time there was ap- parently no recurrence.
June 20, 1879. (57)	M. Duplay. <i>Archiv. gén. de méd.</i> , 1880, vol. i, p. 353.	Male.	14	3 years.	Hard, elastic tumor of size of chestnut (French) filling naso- pharyngeal space, and apparently implanted on basilar process by a large base.	Fibrous.	Incision through soft palate, and prolonged two centimetres in front upon vault of palate. Tumor removed with écraseur, and stump destroyed as far as possible with thermo- cautery.	Within three months manifest tendency to re- production, and Septem- ber 26th an injection of ten drops chloride of zinc (sat. solution ?) was made. Repeated twelve times, and last injection fifteen days before date of report, after an in- terval of four months; during which there did not seem to be any sign of recurrence. Eight days after opera- tion erysipelas set in, but patient made a good re- covery. No subsequent history given.
Oct. 2, 1879. (58)	Prof. Aschenoven. <i>Archiv. für klin. Chir.</i> , 1880, xxv, p. 150.	Male.	52	Not stated.	Tumor of naso-pa- ryngeal space, large as hen's egg, attached by pedicle with broad base to base of skull.	Sarcoma.	Preliminary trache- otomy. Temporary dis- placement of both up- per jaws. Tumor re- moved with forceps and sharp spoon.	Eight days after opera- tion erysipelas set in, but patient made a good re- covery. No subsequent history given.
1879. (59)	M. Verneuil. <i>Bul. et mem. soc. chir. de Paris</i> , N. S., vol. v, p. 836.	Male.	Not stated.	Not stated.	Naso-pharyngeal tu- mor of enormous size.	Not stated.	Soft palate divided, and considerable por- tion of growth removed with écraseur. Appli- cations of chromic acid to pedicle then made every two or three days.	Remaining part of tu- mor gradually underwent softening and atrophy. Subsequent history not given.

Date.	Operator. Reference.	Sex.	Age.	Previous Duration of Symptoms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
Jan. 17, 1880. (60)	H. Guleke. <i>N. Y. Med. Record</i> , June 25, 1881.	Male.	17	Nearly 1 year.	Tumor of size of small hen's egg springing from upper wall of pharynx and occluding posterior part of right nostril. In addition, a number of small, soft bodies in pharynx, especially on right side.	Fibroma.	Removal with the galvanocautery écraseur.	In a recent note to the writer, Dr. Gulshe states that there has been no recurrence up to the present time.
Mch. 10, 1880. (61)	Henry Morris. <i>Med. Times and Gazette</i> , June 4, 1881.	Male.	14	2 years.	Tumor of pharynx descending behind soft palate and plugging posterior nares. Process of the growth extended into sphenomaxillary fossa through naso-palatine foramen and through sphenoidal fissure into cavernous sinus. Then upon side of body of sphenoid bone it reached to the <i>sella Turcica</i> ; thus extending within the skull.	Fibrous.	The facial and palatal parts of superior maxilla removed, and a large mass of very hard growth dissected and wrenched away, together with part of sphenum nasi, to which it was firmly adherent. A considerable portion of tumor left <i>in situ</i> .	The patient, who was at the time in very bad condition, died before completion of operation.
June 1, 1880. (62)	Henry Morris. <i>Ibid.</i>	Male.	45	4 years.	Elastic tumor, chiefly attached to ethmoid, filling up whole left nostril, and extending also into right nasal cavity and extending into pharynx.	Glandular carcinoma of Billroth.	Osseous aperture made in a previous operation (not by himself) enlarged by snipping away parts of nasal bone and nasal process of superior maxilla, and tumor removed.	Growth recurred in five or six months.

Date.	Operator. Reference.	Sex.	Age.	Previous Duration of Symptoms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
Jan. 11, 1881. (63)	Henry Morris. <i>Ibid.</i>	Male. (Same patient as above.)	45	1 or 2 months.	The same as above.	<i>Ibid.</i>	Previous opening into nose enlarged by chipping away anterior border of superior maxilla, and growth scraped away as thoroughly as possible.	Subsequent history not given.
Sept. 1, 1880. (64)	C. B. Nancrede. <i>Phil. Med. Times</i> , Dec. 18, 1880.	Male.	52	2 months.	Large, irregular, and lobulated growth completely filling pharynx and left nostril, attached to base of skull; involving internal angular process of frontal bone, nasal process, and orbital plate of superior maxilla, and displacing the eye outward and upward.	Tubular epithelioma.	Fergusson's incision and removal of left superior maxilla, leaving malar, nasal, lateral mass of ethmoid, and pyramidal processes of sphenoid bone. Portions of tumor removed with fingers, forceps, and scissors.	The case did well, with the exception of sloughing of the cornea, two weeks after operation, from secondary implication of the nerve. Subsequent history not given.
Oct. 26, 1880. (65)	Henry Morris. <i>Med. Times and Gazette</i> , June 11, 1881.	Male.	14	2 years.	Tumor of pharynx large as small pear, with somewhat narrow pedicle, and a long, irregular branch, which probably projected into one nostril at posterior nares.	Fibrous, and fibro-cellular.	After two unsuccessful attempts to remove with écarateur, tumor extracted by avulsion, with forceps, through the mouth.	No recurrence up to eight months after operation.
Nov. 17, 1880. (66)	M. Desprès. <i>Bul. et mem. soc. chir. de Paris</i> , May 5, 1882.	Male.	18	2 years.	Large naso-pharyngeal tumor implanted on a large surface at base of skull, with one prolongation into right orbit, and a second, large as an apple, into zygomatic fossa.	Not stated.	Removal of superior maxilla by Nélaton's operation. Tumor extracted, and the bone at seat of attachment scraped. Orbital prolongation not entirely removed.	Growth began to recur within a month. A year previous to operation the soft palate had been divided, and interstitial injections of chloride of zinc made, but in spite of this the tumor had continued to increase in size.
Dec., 1880, to Jan., 1882. (67)	M. Desprès. <i>Ibid.</i>	Male. (Same patient as above.)	18	1 month.	Tumor growing from pedicle of above.	Not stated.	For fourteen months growth cauterized at intervals with a saturated solution of chloride of zinc.	In two months tumor ceased to grow, but the applications had been kept up for a year longer, and it was proposed to continue them for several months still.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
1881. (68)	George A. Peters. <i>N. Y. Med. Record</i> , July 23, 1881.	Male.	17	18 months.	Elastic tumor, exten- sively attached to basi- lar process of occipital bone, occupying poste- rior nares, projecting forward into both nos- trils, pushing uvula for- ward and downward, and encroaching some- what upon throat. Growth in same situa- tion as above, but rather larger.	Fibroma.	Maisonneure's opera- tion for removal of up- per jaw, and extraction of tumor.	Growth recurred within very few months.
July, 1881. (69)	Charles McBurney. <i>N. Y. Med. Record</i> , March 4, 1882.	Male. (Same pa- tient as above.)	17	Not stated.	Tumor much the same as above.	Fibroma.	Same operation as by Dr. Peters, with excep- tion of removing the portion of bone. Destruction of growth by burning down with actual cautery, which was applied seven or eight times, at intervals of two or three weeks.	Tumor recurred very quickly.
Autumn of 1881. (70)	George A. Peters. <i>Ibid.</i>	Male. (Same pa- tient as above.)	17	Not stated.		Fibroma.	Each time after the cauterization the growth seemed to recur from less space. In a recent note to the writer, Dr. Peters states that the polypus is now growing slowly, and that it has involved parts which make further operation impracticable.	
Dec., 1881. (71)	F. H. Hooper. <i>Boston Med. and Surgical Journal</i> , Aug. 24, 1882.	Male.	23	1 year.	Large, smooth tumor, completely filling pos- terior nares, and oc- cluding right nostril.	Fibrous.	Complete removal with Jarvis' snare.	In a recent note to the writer, Dr. Hooper states that he has seen the pa- tient within six months, and that there has been no recurrence. In 1877 he was treated for post- nasal tumor by Dr. F. I. Knight with the galvano- cautery by puncturing. After a few sittings, growth diminished in size, but subsequently re- curred, and in 1870 a con- siderable portion of tumor was removed by Dr. Gar- land, through anterior nares, with forceps.

Date.	Operator. Reference.	Sex.	Age.	Previous Dura- tion of Symp- toms.	Situation and Extent.	Pathological Nature.	Treatment.	Result and Subsequent History. Remarks.
1882. (72)	R. F. Weir. <i>N. Y. Med. Record</i> , June 3, 1882.	Male.	8	1 year.	Tumor $1\frac{1}{2}$ x $1\frac{1}{2}$ x $1\frac{1}{2}$ inches, weighing over half an ounce, attached to basilar process of occipital bone, partially occluding the nostrils, and hanging down nearly to base of tongue.	Fibro-sarcoma.	Nélaton's operation. Soft palate divided, and a large part of hard palate, together with vomer, removed. During operation, tracheotomy performed, on account of sudden asphyxiation. Attachments of tumor cauterized.	The child rallied at first, but then suddenly sank, and died within an hour after operation.
May 27, 1882. (73)	George F. Shradly. <i>N. Y. Med. Record</i> , Sept. 16, 1882.	Male.	14	4 years.	Tumor filling superior vaults of nose and pharynx, entirely occluding left posterior nares, extending across septum into right posterior nares, and attached to basilar process of occipital, to the sphenoid, and to the adjacent temporal bone. To the left it spread to a slight extent into pterygoid fossa, and was continuous with a tumor in the cheek by a prolongation into left sphenomaxillary fossa. A lobe of tumor also extended into cavity of antrum, through an opening made in posterior surface, by absorption.	Fibro-sarcoma.	Preliminary laryngotomy. Fergusson's incision, and lower half of left upper jaw removed. Soft palate divided, and tumor removed by cutting attachments with curved scissors.	Patient died within an hour after operation. At the autopsy a tumor, of size of horse-chestnut, evidently continuous with naso-pharyngeal growth, found attached, by inflammatory adhesions, to under surface of left middle lobe of cerebellum.
Jan. 8, 1883. (74)	R. P. Lincoln.	Male.	17	2 years.	Elastic tumor of size of seckel pear, occluding both nostrils posteriorly, extending into right to within two inches of anterior orifice, and attached to basilar process of occipital bone, and to sphenoid, principally on right side.	Fibroma.	Galvano-cautery écraseur, passed through right nostril, as in cases Nos. 33 and 39.	Five applications of galvano-cautery to stump at intervals of one week. No recurrence up to present time.

CLINICAL NOTES.

I.—DISAPPEARANCE OF A "TRACHOMA" OF THE VOCAL CORD WITHOUT LOCAL TREATMENT.

II.—TRAUMATIC PARALYSIS OF POSTERIOR CRICO-ARYTENOID MUSCLE.

By FREDERICK I. KNIGHT, M.D.,

BOSTON.

I.—Trachoma is usually such an obstinate condition and receives so much local treatment, that the natural history of it has been seldom, if ever, written. Therefore, the following case may be of interest.

Miss M. consulted me in Dec., 1873, on account of hoarseness and loss of her singing voice. On laryngoscopic examination there was seen on the edge of the right vocal cord, midway between the vocal process and anterior angle, the smooth ovoid nodule (quite a large one) usually described under the head of "trachoma" or "chorditis tuberosa." The patient lived in the country, and could not place herself under local treatment at this time. She was put upon general tonic treatment and a careful regimen.

I saw her again in February, 1874, and the same condition existed. This time, also, she could not remain for treatment, but went back to the country.

I saw her again about six months afterward, and the nodule had entirely disappeared. She had received no local treatment.

I heard from the patient this summer (1883), that her voice had remained good.

II.—Traumatic paralysis of posterior crico-arytenoid muscle.

The report of the above case suggests that of her sister, who

came to me one day in great trepidation, saying that she had turned her head suddenly to look out of a window of the horse-car, and had been hoarse and had had difficulty in swallowing since (a few hours). On examination I found decided impairment of action in the right posterior crico-arytenoid muscle. In a few days complete recovery took place. The only other case of apparent traumatic affection of this muscle which I have seen, was that of a man who fell down-stairs, striking on the top of his head. On getting up he noticed an alteration in his voice, and coming to me I found complete paralysis of one posterior crico-arytenoid muscle, which continued as long as the patient was under observation—several months.

TRANSACTIONS
OF THE
FIFTH ANNUAL MEETING
OF THE
AMERICAN LARYNGOLOGICAL ASSOCIATION,
HELD IN THE HALL OF THE ACADEMY OF MEDICINE, NEW YORK,
MAY 21, 22, AND 23, 1883.

Second day, morning session.

*Discussion on Dr. French's Paper.**

Dr. KNIGHT spoke in commendation of the work of Dr. French, and expressed great gratification at the improvement made since last year. Although few members probably were competent to discuss the method, or to offer suggestions upon the subject, he thought the pictures submitted showed a great gain, and demonstrated that something really practical might ultimately come from photographing the larynx, and he hoped that Dr. French would be induced to continue his work in this field.

Dr. SEILER noticed a decided advance in the photographs over those of last year. As an amateur photographer himself he could sympathize with some of the difficulties experienced by Dr. French, and suggested that possibly some improvements might be made in the apparatus, especially in the management of the drop shutter.

Dr. FRENCH said that the encouraging remarks made would certainly stimulate both Mr. Brainerd and himself in their future experiments.

* See page 235.

In reply to Dr. Seiler, he said that he thought that there would be no difficulty in finding the proper attachments as soon as the size of the camera was decided upon. He felt that the principle had been found, and believed that a camera which would produce larger and perhaps perfect photography would soon be produced.

In the absence of H. A. Johnson, M.D., of Chicago, Dr. Mackenzie, of Baltimore, was appointed to read his communication.

*Discussion on Dr. Johnson's Paper.**

Dr. KNIGHT said that in this connection he would like to state his own conviction in regard to the proper treatment of these papillomatous growths in very young children, in order to see how it might compare with that of other Fellows of the Association. In consideration of the gravity of the operation of thyrotomy, its great liability to permanent impairment of the voice, and the risk of the recurrence of the growth, he thought it proper in such cases to insert a tracheotomy tube when urgent dyspnœa demanded it, and then wait for a not impossible spontaneous expulsion, or until the child should become old enough for operation *per vias naturales*.

Dr. J. O. ROE said that the reading of Dr. Johnson's very interesting paper and the report of his cases recalled to his mind very vividly two cases of undoubted congenital growths of the larynx which had come under his own observation.

The first case he saw about five years ago. It was that of a child, two years of age, referred to him by Dr. Ely, of Rochester. From infancy this child had had a very hoarse, croupy voice, and was unable to cry aloud. This condition continued to increase until the child was one year old, when it began to have considerable difficulty in respiration, especially on exertion. From this period to the time Dr. Roe saw the child, the dyspnœa had not increased, and its condition had apparently remained stationary. He succeeded in making a laryngoscopical examination, which revealed a growth, evidently papillary in its nature, springing from one side of the larynx,—as he remembered, from the right side. He advised that tracheotomy be performed, but the parents preferred to defer the operation until it became more urgently called for. The case had not since been heard from.

The second case was that of a child about eight months old, which had not been able to cry aloud since birth, and had had

* See page 244.

frequent attacks of marked dyspnœa. As this condition was unassociated with any inflammatory trouble, the family physician brought the child to Dr. Roe for, if possible, a laryngoscopical examination. After several attempts a growth was discovered in the upper portion of the larynx. It was advised that tracheotomy be performed at once, as the child was in imminent danger of suffocation. The operation was at once performed. The child recovered without accident, has worn the tube since, and is now stout and healthy. In this case he also advised that the operation of removing the growth be deferred until the child was old enough for the tumor to be removed *per vias naturales*, unless it should grow sufficiently to require operative interference before. In this respect he agreed with Dr. Knight that the operation of thyrotomy should be avoided, unless imperatively required.

Dr. COHEN referred to the frequency of "colds" in early life, and to the well-known fact that papillomas frequently followed the catarrhal inflammations of the larynx in measles, croup, diphtheria, and whooping-cough. He was inclined to believe that growths of this character that are really congenital are rare. He was opposed to the radical operation when not absolutely necessary; not so much on account of prospective injury to the voice, for that was a matter secondary to preserving the life of the patient, but he feared the cicatricial tissue of the divided skeleton of the larynx would materially interfere with the proper development of the larynx at puberty. He would also call attention to the fact indicated by the result of two operations mentioned in the paper, that they are attended by a certain risk of pneumonia. He had long recognized this risk in all operations upon the cervical region, even when the air-passage was not opened, and was inclined to attribute it in part to the lowered temperature to which the pneumogastric nerve and its ramifications were subjected. He therefore deemed it important that such operations should be performed in well-warmed apartments, and that great circumspection be used for several days after the operation.

Dr. GEORGE W. MAJOR said that a clearly congenital case of laryngeal papillomata had not come under his observation; cases however, had presented themselves so early in life that some interest might attach to a short narration of them. The first case, a child of two years, was referred for an examination on account of aphonia and dyspnœa, in December, 1880. Active treatment was deferred until May 12, 1881, when a tracheotomy was performed. Since that date a tube has been worn con-

tinuously. In August, 1882, a quantity of papillomatous growths were expectorated, and the voice and breathing remained fairly good for at least two months, when they gradually became interfered with. A few weeks ago an examination showed extensive redevelopment of the growth, which was above the level of the cords. Another case was that of a child, aged ten months, with a hoarse voice from infancy and occasional attacks of difficult breathing. It was seen for the first time at about its second month of life, in consultation, and not again until a few days previous to its death. A tracheotomy was then urged, but it was so long delayed that when performed life only lasted twenty-four hours. On post-mortem examination papillomatous growths were found in the larynx.

In regard to thyrotomy he considered that even at the risk of permanent injury to the voice it is a preferable operation to one through the cricoid cartilage.

Dr. W. F. DUNCAN related the history of two cases of papilloma in children under three years of age. In both, the diagnosis had been made with the laryngoscope. The parents of the first case refused to allow tracheotomy to be performed, and the child died from suffocation.

The second case was operated upon, and the tumor was removed. The child made a good recovery.

Second day, afternoon session.

*Discussion on Dr. Elsberg's Paper.**

Dr. MACKENZIE emphasized the importance, and insisted upon the great frequency, of cough, as a symptom of nasal disease. Clinical observation and experimental investigation had led him to the following conclusions :

1. That in the nose there exists a well-defined, sensitive area, whose stimulation, either through a local pathological process, or through an irritant introduced from without, is capable of producing an excitation which finds its expression in a reflex act or in a series of reflected phenomena.

2. That this area corresponds in all probability with that portion of the nasal membrane which covers the turbinated corpora cavernosa.

3. That reflex acts are produced by stimulation of this area, and are only exceptionally evoked when the irritant is applied to other portions of the nasal membrane.

* See page 253.

4. That all parts of this area are not equally susceptible to irritation, the most sensitive spots being probably represented by those portions of the membrane which cover the inferior half of the lower turbinated bone and the erectile body on the septum immediately opposite.

5. That the susceptibility to irritation varies in different individuals ; in some the slightest touch is sufficient to produce the reflex act, whilst in others it can only be produced after long-continued irritation.

That the reflex tract is limited to the above area is rendered probable by the following clinical facts :

1. That where reflex cough exists, this is the area chiefly if not solely involved.

2. That the act may be induced by artificial irritation of the diseased structure.

3. That it may be dissipated by topical applications to, or removal of, the diseased membrane.

4. That polypi give rise to reflex phenomena only when they arise from or impinge upon the sensitive area.

5. That in cases where foreign bodies, such as pins, become impacted in the above area, reflex cough will sometimes occur, which latter is not observed when they lodge in the non-sensitive parts of the nose.

Dr. Mackenzie had submitted a paper on the above subject to the Maryland Academy of Medicine, which would appear in the July number of the *American Journal of Medical Sciences*.

Dr. ROE said that the subject of reflex phenomena is a very interesting one ; the more clearly the subject is understood and the more thoroughly it is studied, the more readily will we be able to discover the cause of symptoms manifested in the derangements of one organ by disease located in another organ sometimes quite remote.

A very frequent illustration of the reflex derangement induced by nasal disease is seen in many cases of asthma. The association of asthma with nasal polypi is well known, but its association with hypertrophic turbinated tissue is quite often overlooked, particularly in those cases in which the nostrils are not greatly obstructed. By way of illustration the speaker mentioned the case of a patient who consulted him last winter for severe and frequent asthmatic attacks to which he was subject, particularly at night. Examination revealed a mild form of chronic bronchitis, and,

in the nose, considerable hypertrophy of the turbinated tissue over the inferior turbinated bone. In addition to other treatment, the hypertrophic tissue in the nose was removed, which gave almost immediate relief to the asthmatic attacks. Shortly after he was obliged to take a car trip for three days ; during the whole trip he was quite free from any asthma or dyspnoea ; before this time he had not been able to travel by rail, particularly at night on sleeping-cars, without suffering severely from dyspnoea, and being obliged to sit up all night and smoke to be able to breathe with any degree of comfort. Many other cases could be cited in illustration of this phenomenon of reflected symptoms from disease in the nose.

Dr. SEILER said that he had reported in the ARCHIVES OF LARYNGOLOGY two cases of reflex irritation due to nasal disease, and gave the history of a case of chorea due to turbinated hypertrophy, which was cured by the removal of the hypertrophies. He also mentioned the existence of cases which he believed to be neurotic, in which a sudden copious discharge from the nose, of a watery fluid, accompanied by sneezing, headache, and so forth, attacked the patient, and continued for some time, to disappear as suddenly as it had set in.

Dr. BOSWORTH said that Dr. Elsberg had opened in this subject a wide and most interesting field for discussion. The speaker wished to refer to but a single point ; it would be better, it seemed to him, that in speaking of nasal catarrh, we should define the especial disease causing the catarrh. He had met with spasm of the glottis, for instance, as a reflex symptom in a number of cases of nasal disease, but it had been invariably due to a rhinitis atrophica, never to the hypertrophic form of the disease. In these cases the attack was of the most alarming character, and occurred in the young as well as in adults. The youngest patient was six years of age, the oldest a man of fifty-five. The spasm was entirely relieved, and no second attack occurred in any case as long as the nasal membrane was kept thoroughly moistened.

Dr. JARVIS said that a case of asthma, caused by complete closure of the nares by a deviated septum, gelatinous polypi, and turbinated hypertrophy, had come under his observation. The patient, for several years, had not omitted to rise early every morning and seek relief in going to the window for fresh air. Removal of the abnormal tissues in a few weeks relieved the patient of the asthmatic attacks.

*Discussion on Dr. Allen's Paper.**

Dr. DELAVAN said that the subject which Dr. Allen had brought to the attention of the Society in such an able and interesting manner was one which was entirely new. In his published works and his private investigation, Dr. Allen, with Zuckerkandl, had probably given more attention to the bony anatomy of the nasal fossæ than any other observer. For several years past great advances had been made in the pathology and treatment of the nasal cavities. Unfortunately, however, most investigators had begun at the wrong end of the question, and, instead of giving due consideration to the osseous structures of the nares and their abnormalities, had confined their attention to the overlying soft parts. It is simply impossible to relieve many cases of nasal obstruction, and the conditions arising therefrom, by medical treatment alone.^{*} In many instances surgical treatment is absolutely necessary to accomplish a thorough and radical result. The speaker's own investigations had been in the direction of Dr. Allen's, and he had been greatly interested and pleased by the suggestions which the latter had given. The importance of the recognition of these conditions of nasal malformation is of course evident as affecting their intelligent prognosis and treatment. Some of them he believed could only be relieved by severe surgical measures.

Discussion on Dr. Lincoln's Paper.†

Dr. JARVIS said that last year he removed a large myxo-fibroma from the nares of a young man. The tumor was attached above the left post-nasal arch. It projected forward into the left anterior naris, extended for some distance into the right nasal cavity, and almost completely occluded the entire naso-pharynx. He operated twice, removing the entire growth. His écraseur was employed. Although the severe strain bowed the instrument, the patient only complained of a toothache and the tedium of the operation. He carried the loop around the growth through the pharynx, afterward bringing the wire through the nose. Four hours were occupied by the operation, and although the instrument pulsated like an artery, there was no blood lost. Four months after the operation there was not a vestige of the growth to be seen. The division of the tumor through its densest portion, without pain and hemorrhage, demonstrated a safe and easy

* See page 256.

† See page 258.

method for removing large nasal-fibroid tumors piecemeal, without resorting to the more formidable operations of general surgery.

Dr. A. H. SMITH described a case in which he had removed a fibroma springing from the vault of the pharynx, and having a length of between two and three inches, and a thickness of one inch. The instrument employed was the Jarvis snare, the wire being passed from the mouth out through the anterior nares. The wire broke at the last moment, but strangulation had been effected and the growth afterward sloughed. A subsequent operation became necessary a few weeks later, on account of the rapid growth of the pedicle. After the second removal the stump was touched three times a week with perchloride of iron. There is now, four weeks later, only a small papule remaining to indicate the location of the pedicle.

Dr. SEILER said that he had seen a number of cases of the kind referred to by Dr. Lincoln. In one patient the posterior nasal chambers were blocked up by the growth, which he could recognize with the finger as having undergone cartilaginous changes. He had succeeded in removing the tumor with a wire snare, and had afterward applied the galvano-cautery. Although he was told by the patient that the growth had been removed about nine months before, he had not seen, since the last operation, any evidence of recurrence. In another case he had great trouble in applying the snare, as the loop slipped off again and again. He finally, in the course of several weeks, removed the growth piecemeal. It weighed over four ounces. Another patient, an old man seventy-four years of age, had come to him for treatment, but as he was from the country, he was obliged to let him go to a hospital. However, he removed a portion of the growth, which enabled the man to breathe more freely, and he had no doubt that eventually he could have removed it entirely by the method which was successful in the preceding case. The attending surgeon at the hospital attempted to remove part of the maxilla two days later, but the patient died while on the table.

Dr. INGALS had operated upon three cases of this kind during the last two years, although in only one was the character of the growth determined by microscopic examination.

In this case he had removed it with the galvano-cautery, and the tumor did not return, though, at the end of two years, there was a small swelling at the seat of the original growth. It was not very large, however ; about the size of an ordinary black walnut, one

and a quarter inches in diameter. In a second case he had great difficulty in surrounding the base of the tumor, which filled the naso-pharyngeal space and could be seen below the palate, with the wire of the *écraseur*. He found it impossible to introduce a wire through the nostril, either by the Eustachian catheter or by Bellocq's sound, but finally succeeded with the aid of a soft catheter which was forced through the slight opening, while the *stilette* was slightly withdrawn so as to leave about half an inch at the end very flexible, while the remainder of the instrument was kept firm. He had used the handle of Shurley's galvano-cautery, as modified by Bosworth, the wire having been passed through a tubular electrode, as indicated by the author of the paper, but upon turning on the current he found it short-circuited through the metallic axis of the ivory wheel used for tightening the wire. By substituting a lead-pencil for the wheel, he succeeded in removing the growth close to the vault of the pharynx, to which it was attached; however, he thought that it had been cut off too rapidly, as there was excessive bleeding, which was stopped in about thirty minutes. He learned from the attending physician that the patient fainted two or three times during the evening after the operation. There had been little or no complaint of pain during the operation. Although the tumor was removed perfectly it had since rapidly grown.

Dr. BOSWORTH thought that the Association owed a debt to Dr. Lincoln for bringing before it this splendid series of cases, successfully treated, without resorting to the severe operation of Langenbeck, generally followed by surgeons. He felt personally indebted to him for the superb demonstration.

He would like to say that he had heard during the discussion about myxo-fibroma, fibroma, and polypi, and he would like to understand what was meant by these terms. According to his opinion a fibroma is never a polyp, and a polyp is never a fibroma.

Dr. SMITH asked permission to call attention, in the use of the galvano-cautery *écraseur*, to the great advantage of drawing the temper of the wire for several inches at its ends, for the purpose of facilitating subsequent manipulation.

Dr. LINCOLN, in closing the discussion, said that he had nothing to add to what had been stated in the paper. He simply wished to bring these cases before the Association, and to call its attention to a plan of treatment in preference to the ordinary one

of excision through the facial bones. The operation which he proposed is much safer than the old one, from which nearly one third of the cases died, as shown by the statistics for the last fifteen years. Some of the speakers had referred to the difficulty in attaching the wire over these growths ; it is true that it requires some patience and perseverance, but with these all its difficulties can be overcome.

The President introduced to the Association Dr. Holden, who exhibited an illuminating apparatus for examining the upper air-passages, which he had devised in the laboratory of Mr. Edison.

Dr. HOLDEN said that he regretted that he had to exhibit the instrument while it was still in an imperfect state, but he would show that he had been successful in adapting the carbon illuminator to a glass tube for the purpose of illuminating cavities of the body. The instrument which he exhibited was a glass tube enclosing the carbon filament, and covered by a shield for the greater portion of its extent. It worked well with a small power, only two Smee cells being required. The principle is simply that of direct illumination of the cavity itself, without the use of a mirror. The defect in the instrument was, that the shield did not extend far enough forward. The glass tube was larger than necessary, but was made so in order that it might not heat up and become uncomfortable to the patient. He felt much encouraged at its success as an illuminator.

The President stated that directly after the close of the meeting Dr. Lincoln had some cases which he would exhibit.

The session then adjourned.

REVIEWS AND BOOK NOTICES.

Hospital for Diseases of the Throat and Chest, Golden Square, W., and Newington Butts, Walworth, S. E. Nineteenth Annual Report (1881). London, 1882. 106 pp., 12°. Price six-pence.

The annual report of the above institution is an instructive document, presenting at a glance the work accomplished during the year of 1881 at the Golden Square Hospital and at its branch situated at Newington Butts. Upon opening the volume we are struck with surprise at the number of vice-presidents, patronesses, honorary associates, and medical officers connected with these institutions, and to their substantial assistance are due the fine administration and enviable reputation of the Hospital for Diseases of the Throat and Chest.

We meet the familiar names of Morell Mackenzie, R. H. Semple, Prosser James, W. MacNeill Whistler, Felix Semon, and Edward Woakes on the medical and surgical staff.

Four thousand five hundred and forty out-patients were treated during the year; of this number 3,066 are credited to the main institution, and 1,474 to the branch.

It is stated that the rebuilding of the hospital and the necessary closure of the same for several months reduced the in-patients to 69—less than for years, as in 1880, for example, the number was 161.

That portion of the report which especially interests the laryngologist contains a general summary and twenty-four tables replete with germane data. The relative frequency of disease in the organs specified is first mentioned, and then the individual diseases attacking such organs. We reproduce a portion of table "A":

Diseases of the Pharynx . . .	1,134	Diseases of the Larynx . . .	614
“ “ Trachea . . .	2	“ “ Esophagus . . .	23
“ “ Nares . . .	48	“ “ Chest . . .	288

Scanning the special table for diseases of the pharynx, seventeen headings are noticed, representing as many diseases, the commonest of which is enlarged tonsils, occurring 334 times. The predominating maladies in nasal and laryngeal affections are chronic rhinitis and congestion of the larynx, reported 21 and 293 times respectively.

Worthy of mention is the fact that only eight paralyses of the vocal cords and ten non-malignant growths are encountered in the laryngeal diseases.

Throughout the greater number of the tabular statements the equal frequency of disease in the two sexes is remarkable, the number of females exceeding the males by 22; the difference among the in-door patients being three in favor of the males.

The present report, in common with its eighteen predecessors, is a model of business-like arrangement, complete tabular statistics, and compactness. A good cut of the old hospital adorns the cover of the book. In concluding, we desire to mention the terse and practical “Anglo-Saxon” nomenclature adopted, and the entire exclusion of the indefinite technicalities found too often in hospital reports. [E. C. M.]

Central London Throat and Ear Hospital, Gray’s Inn Road, W. C. Report for the year 1881–82 (8). London, 1882, 32 pp., 12°.

Whilst this report deals almost exclusively with the financial matters of the Central London Throat and Ear Hospital, containing little of special interest to the student of laryngology, we consider a brief notice in place. 4,867 out-patients and 209 in-patients suffering from throat and ear diseases were treated during the year ending March 25, 1882. The report contains no information regarding the particular organs diseased in these 4,867 patients, nor special forms of the affections.

The lime-light is employed for examinations and operations by Lennox Browne, Llewelyn Thomas, and Geo. B. Steil, the surgeons in attendance, and it is stated that as many as 25,000 separate visits are made annually to the institution, by patients under treatment.

This hospital possesses rich material for clinical observation, and we regret exceedingly that fuller information is not published, the profession needing just such valuable details.

May we venture to express the hope that future issues of the report of the Central London Throat and Ear Hospital will present the desiderata above indicated

[E. C. M.]

QUARTERLY REPORT OF LARYNGOLOGICAL LITERATURE.

By GEORGE T. JACKSON, M.D.

I.—LARYNX.

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OBITUARY.

DEATH OF PROFESSOR KRISHABER.

Laryngology has lost a shining light, and many of us a warm friend, in the death of Professor Krishaber, which occurred on April 11th, at Paris, his death following that of his wife after the lapse of but a few days. His earnest devotion to his work, and his many interests, which caused him to assume more than an ordinary amount of labor, have probably had much to do in causing the ill-health from which he has lately suffered, and, together with the mental blow which had so lately been inflicted upon him, rendered him an easy prey to the typhoid poison.

Professor Krishaber was born in Hungary in 1836, and began his medical course in Pesth, where he was a pupil and ardent follower of Czermack in 1857. A little later he sought the teachings of Türck in Vienna, and finally terminated his medical studies in Paris—presenting a thesis on the “*Développement de l'Encéphale*,” and receiving the degree of Doctor in Medicine, August, 1864. He became a naturalized Frenchman in 1872, and took up his permanent residence in Paris.

Thus, it will be seen he was one of the early workers in our specialty; and that he has done as much as any man—more than many—to spread a knowledge of the laryngoscope and of laryngeal pathology throughout the medical world, will be conceded. As a writer, he was prolific and always able; as an editor, the success of the *Annales des maladies de l'oreille et du larynx* which he, in connection with Isambert and Ladreit de Lacharrière, founded in 1875, attests his power.

He was a collaborator of these ARCHIVES from the date of their foundation, and his loss will be keenly felt by those upon the staff who survive him.

G. M. L.

DEATH OF PROFESSOR VON BRUNS.

At a ripe age, Professor von Bruns has passed away. Although of late years his contributions to the special field of laryngology have been but few, and his name may, consequently, not be well known to the younger generation of workers in that department, to the older ones it is familiar, and his two most elaborate works on diseases of the larynx find a well-recognized and well-worn place upon their book shelves. As a general surgeon, and as an author of several surgical treatises, he was perhaps better known to the general medical profession.

His work on “*Laryngoscopic Surgery*” gained him the grand prize of the Academy of Turin. He leaves a worthy successor in the person of his son, Professor Paul Bruns, who fills the Chair of Surgery at Tübingen, and whose treatise on “*Die Laryngotomie zur Entfernung intralaryngealer Neubildungen*” is widely and favorably received.

G. M. L.

MISCELLANY.

THE BRITISH MEDICAL ASSOCIATION AND LARYNGOLOGY.

No provision, apparently, was made for the specialty of Laryngology at the meeting of the British Medical Association, which took place at Liverpool, July 31st, August 1st, 2d, and 3d. The other specialties, viz., Ophthalmology, Otology, Diseases of Children, etc., were represented by full sections. After the experience gained at the International Medical Congress in 1881, and in view of the fact that the American Medical Association has fully recognized for several years the claims of Laryngology to the position of a specialty, both precedent and knowledge of the actual and valuable work done in such a section are not wanting; and we venture to hope, that at the future meetings of the British Association, a proper and honorable place may be found for our special workers, as well as for those in other departments of medicine.

LARYNGOLOGY AT THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

In the section of Ophthalmology, Otology, and Laryngology, at the recent meeting of the American Medical Association, the following papers were read upon subjects pertaining to the last specialty: "Tonsillotomy without Hemorrhage," "Action of Nitrate of Silver on the Mucous Membrane of the Throat," "Nasal Disease the Frequent Cause of Asthma," "The Appearance of the Diseased Mucous Membrane of the Nose and Throat of Adult Patients."

EIGHTH INTERNATIONAL CONGRESS.

The preliminary notice of the Eighth International Congress has been issued from Copenhagen, where the meetings will be held from the 10th to the 16th of August, 1884, under the Presidency of Professor Panum.

Our readers will be interested in learning that Laryngology has been assigned an independent Section, which will have an able presiding officer, in the person of Dr. Wilhelm Meyer. The committee, consisting of Dr. W. Meyer, Dr. Schmiegelow, Dr. Berlème Nix, Dr. E. Bull, and Dr. Ribbing, has prepared a provisional list of questions which it has thought suitable to be discussed in the meetings of the Section. They request that any changes or additions that are thought desirable in this Provisional Programme may be communicated to the President of the Section, if possible, before the 1st of November of this year.

List of subjects proposed for Communications and Discussions in the Section of Laryngology, Eighth International Congress.

1. Treatment of Bronchocele.
2. Syphilitic Affections of the Larynx ; their various Forms and Frequency.
3. The Prognostic Significance of the several Local Manifestations observed in Tuberculosis of the Larynx.
4. Local Treatment of Diphtheria.
5. The Treatment of Diseases of the Respiratory Passages by Inhalations.
6. Pathogenesis and Treatment of Spasm of the Glottis.
7. The Operative Removal of Foreign Bodies and Pseudo-Plasmes from the Air-Passages.
8. Treatment of Nasal Polypus (Evulsion—Galvano-Cauterization).
9. Paralysis of the Larynx.
10. The Singing Voice—its Proper Method of Training.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Forty members of the profession from different parts of the country accepted a call, either in person or by letter, to attend a meeting Tuesday, September 25, 1883, in the rooms of the Academy of Medicine, New York City, for the purpose of forming a new national society.

It was decided to name the organization, the American Climatological Association. Its object is the study of the diseases of the respiratory organs, together with the influence of climate thereon.

Drs. Tyndale, New York ; Bruen, Philadelphia ; and Garland, Boston, were appointed a Committee to draft a Constitution and By-Laws, to be presented for consideration at the next meeting, and the same Committee were appointed temporarily a Board of Censors.

Drs. Garnett, Washington ; Donaldson, Baltimore ; Bosworth, New York ; Shurley, Detroit ; and Wilson, Philadelphia, were appointed a Committee of Arrangements for the First Annual Meeting, which will be held in Washington, about the time of the next meeting of the American Medical Association.

The following officers were elected :

President, Dr. A. L. Loomis, New York.

1st. Vice-President, Dr. F. I. Knight, Boston.

2d. Vice-President, Dr. W. H. Geddings, Aitken, S. C.

Secretary and Treasurer, Dr. J. B. Walker, Philadelphia.



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